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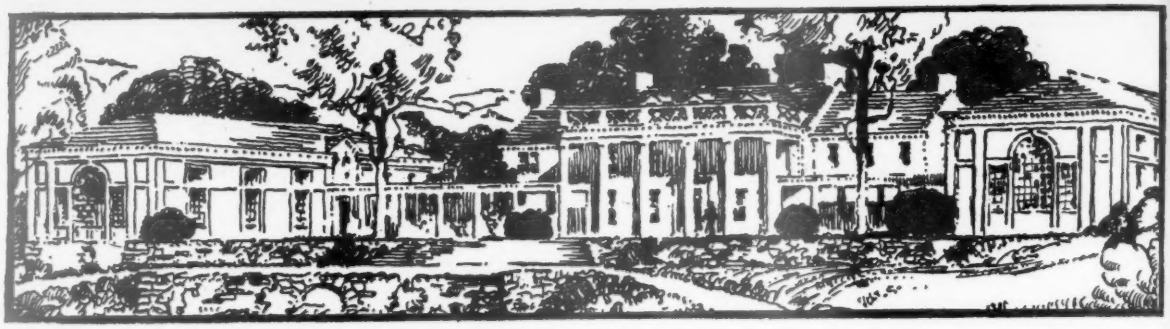

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TEXTILE TECHNOLOGY DIGEST

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Abstracts

[*Sources of patent abstracts are cited if they are not from printed copies or official abridgments.*]

ORGANIC FIBERS I

X-RAY FIBER PATTERN of part of a single starch grain: powder photographs of potato, wheat and arrowroot (Maranta) starch. D. Kreger, Univ. of Delft. *Nature 158,* 199-200 (Aug. 10, 1946).

Densities of large single starch grains (from *Phajus grandifolius*) as measured by x-ray examination agree remarkably with the pycnometric density. This, however, does not prove that unit cell dimensions as deduced from x-ray examination are correct. The powder diagram of Phajus starch is closely similar to that of wheat starch. TTD:11-46.

Cotton I 1 a

COTTON SPINNING QUALITY. Spinning quality of cotton and other staple fibers. Frederick T. Peirce, N. C. State College School of Textiles. *Textile Forum 3,* No. 2, 8, 22-3 (May, 1946).

Various factors determining spinning quality, particularly fiber strength, cohesion, and regular drafting, are considered and the possibility of determining 3 parameters characteristic of a cotton, from which to predict the strength of any yarn or fabric by any strength test, is discussed. TTD:11-46.

EGYPTIAN COTTON. Problems of Egyptian cotton. H. M. Leake. *Fibres 7,* 187-8 219-20 (July, Aug., 1946).

In a brief general survey Egyptian cotton varieties are studied. The causes of inconstancy and deterioration are examined, it being concluded that deterioration is not the result of deliberate adulteration but is due to the inherent nature of the cotton plant. Purity is a relative factor in a plant of such complex genetic constitution as cotton. Since inbreeding by self-fertilization does not lead to sterility, single lines may be carried on indefinitely, such a process being briefly described. TTD:11-46.

ENGLAND'S COTTON INDUSTRY outmoded—reëquipment essential. A. Wyn Williams. *Textile World 96,* No. 7, 141, 143 (July, 1946).

Brief comments on the Working Party Reports emphasize that winding and beaming operations are badly out of line and that over 50% more labor is required to produce cotton cloth than in the U. S. A. TTD:11-46.

INDIAN COTTON VARIETIES. Progress in introduction of improved varieties of cotton in India. Anon. *Indian Textile J. 56,* 838-9 (June, 1946).

The Indian Central Cotton Committee's report for 1944 is very briefly summarized. TTD:11-46.

INDUSTRIAL COTTON for plant and product. Anon. *Modern Industry 12,* No. 4, 34-7 (Oct. 1946).

Among recent developments in cotton products of particular interest to industry are mentioned: Dan River's fiber-bonded yarns, the Shirley oxford weave (used during the war by the British to make fire hose), Torq-Less cloth (a noncurling fabric much needed in plastics laminating), semi-elastic cloth for bandages (developed by USDA), and nonwoven cloth (such as Webril or Masslinn). TTD:11-46.

JAPANESE COTTON MANUFACTURING TECHNIQUE. Frank E. Rowe, Jr. Riverside & Dan River Cotton Mills, Inc. *Rayon Textile Monthly 27,* 485-7 (Sept. 1946); *Textile Bull. 70,* No. 9, 15-16, 18 (July 1, 1946); *Textile World 96,* No. 7, 129, 131, 133, 218, 222, 224 (July, 1946).

Japanese cotton mill practice was found to compare very favorably with that of this country.
HAM TTD:11-46.

CHEMICAL DEFOLIATION OF COTTON. Henry E. Dunlavy, I. M. Parrott, Merrill Gober & Chas. H. Brett. Bull. B-302 of Agricultural Expt. Station, Stillwater, Okla.; 1946; 10 pp. TTD:11-46.

COTTON FABRIC TENTS, TARPAULINS, AND COVERS, RECORDED VOLUNTARY STANDARD OF TRADE. Anon. Nat'l. Bur. Standards, Pamphlet CS28-46, ed. 2; 1946; 14 pp.; price 5¢. (May be obtained from Supt. of Documents, Washington, D. C.). TTD:11-46.

PERIODIC PARTIAL FAILURES OF AMERICAN COTTONS IN THE PUNJAB: THEIR CAUSES AND REMEDIES. R. H. Dastur. Sci. Monograph 2, Indian Central Cotton Committee, Bombay, 1945.

Reviewed in *Nature 158,* 524-5 (Oct. 12, 1946). TTD:11-46.

STUDIES ON FOLIAR HYDRATION IN THE COTTON PLANT. VI. A GEL THEORY OF CELL WATER

RELATIONS. E. Phillis & T. G. Mason. EFFECT OF RINGING AND TRANSPIRATION ON MINERAL UPTAKE: REPLY TO CRITICISM. T. G. Mason & E. Phillis. STUDIES ON PARTITION OF MINERAL ELEMENTS IN THE COTTON PLANT. V. AN ADSORPTION THEORY OF NITROGEN REGULATION. T. G. Mason & E. Phillis. EFFECT OF EXTREME DESICCATION ON THE VIABILITY OF COTTONSEED. E. Phillis & T. G. Mason. MEMOIRS OF THE COTTON RESEARCH STATION, TRINIDAD, SERIES B, PHYSIOLOGY, No. 17, pp. 297-360. Empire Cotton Growing Corp., London, 1946; price 2s 6d.

Cited in *Nature 158,* 388 (Sept. 14, 1946).

TTD:11-46.

WORKING PARTY REPORTS: COTTON. Report of Cotton Board Committee, Board of Trade. H. M. Stationery Office, London, 1946; 278 pp.; price 3s 6d.

Reviewed in *Nature 158,* 213-6 (Aug. 17, 1946) under the title "Research in the Textile Industries".

TTD:11-46.

Flax — I 1 b

FLAX PLANTS. Effect of growth substances on fiber flax plants. Dorothy A. Thorp. *Fibres 7,* 215-18, 263-6 (Aug., Sept., 1946).

Experiments with growth substances (i. e. alpha-naphthyl acetamide, alpha-naphthyl acetic acid, beta-indolyl butyric acid, and 2:4-dichlorphenoxyacetic acid) by a pretreatment of the germinating flax seeds resulted in considerable changes in the root foundation and gave evidence of a beneficial effect. Since, however, at least a 20% increase in fiber yield should result from such treatment to be of real value to the practical grower, results, though promising, do not yet justify the use of these growth substances on a commercial scale. TTD:11-46.

PROCESSING OF DOMESTIC FLAX FOR TEXTILE USE. I—DECORTICATION. J. L. Taylor. Bull. 9 of Engineering Expt. Station, School of Technology, Atlanta, Ga.; 1946; 26 pp. TTD:11-46.

PROCESSING OF DOMESTIC FLAX FOR TEXTILE USE. II—RETTING AND DEGUMMING. J. L. Taylor. Bull. 10 of Engineering Expt. Station, School of Technology, Atlanta, Ga.; 1946; 24 pp.

TTD:11-46.

Minor fibers — I 1 c

KAPOK. Over-all specific volume of kapok. W. Howard Rees. *J. Textile Inst. 37,* T121-39 (May, 1946).

Experiments were made largely on Java and Ceylon kapok to determine the over-all specific volume (i. e. the ratio of over-all volume, including the volume of the entrained air, to the weight of the fiber). Fiber damage suggested as resulting from bailing of kapok under too high a pressure, is investigated and seems to be associated with the flattening of the cylindrical fiber, thus decreasing its filling capacity. Packing densities of about 6 lb/cu. ft. are practicable. Actual measurement of over-all specific volume of kapok from a bale suggests that the extent of recovery on humidification and drying is not diminished by a long period under pressure. TTD:11-46.

RAMIE. Progress in ramie developments. Anon. *Rayon Textile Monthly 27,* 491 (Sept. 1946).

The processing of ramie (as practiced by Sea Island Mills, Inc.) is briefly described, with claimed improvements in quality, appearance, and working qualities of the degummed fibers noted.

HAM TTD:11-46.

RAMIE. Several millions in ramie investment. Hamilton Wright. *Mfrs.' Record 115,* No. 8, 41-2, 56-8, 60-1 (Aug. 1946).

A survey of ramie growing in Florida. TTD:11-46.

Bast fibers — I 1 d

BLEACHED JUTE. Permanent bleaching of lignocellulosic materials. P.L.D. Peill, Leeds Univ. *Nature 158,* 554 (Oct. 19, 1946).

The discoloration which normally occurs in bleached sisal or jute can be prevented by acetylating, benzoylating or methylating the fiber before bleaching. Methylation seems to damage the fiber more than does acetylation. TTD:11-46.

HEMP. Soft hemp. Aine Hagström. *Textil och Konfektion 3,* 374-81 (Oct. 1946).

Cultivation of soft hemp (*Cannabis sativa*) has been successfully revived in Sweden. Spinning of long bast fibers is more expensive than cotton spinning, but short staple "cottonized" hemp (similar to the cottonized bast fiber known in Germany as "Flockenbast") is being manufactured in Sweden. Hemp is the strongest of all natural fibers, its tensile strength range being about 50-120 kg/mm² as compared with 40-200 kg/mm² for steel wire. The breaking length of good hemp is about 70 km. as compared with about 40 km. for the best cotton. It has a wide range of uses in fabrics for nets, sails, tents, bagging, belting, fire hose and many other coarse yarn products. TTD:11-46.

MODERN JUTE SPINNING. Flaxman. *Textile Recorder 64,* No. 761, 46-7 (Aug. 1946).

Inasmuch as the degree of lignification in jute increases as the plant ripens (the best quality fiber being obtained if the crop is cut as the seeds are nearing maturity), spinning quality is dependent upon harvesting as well as the control and efficiency of retting and decortication. Bale opening and softening processes are discussed and a Fraser jute softener illustrated. TTD:11-46.

ANNUAL REPORT FOR THE YEAR 1944-45. Indian Central Jute Committee; Calcutta, 1945; 171 pp.
Cited in *Nature 158,* 494 (Oct. 5, 1946).
TTD:11-46.

APPARENT DENSITY OF JUTE FIBER AND ITS RELATION TO SPINNING QUALITY. B. K. Chakrabarti, C. R. Nodder & K. R. Sen. Technological Research Memoir 8, Indian Central Jute Committee, Calcutta, 1945; 27 pp.; price 12 annas.
Cited in *Nature 158,* 806 (Nov. 30, 1946).
TTD:11-46.

JUTE SUBSTITUTES. K. C. Basak. With a supplement, SOME TECHNOLOGICAL ASPECTS OF JUTE SUBSTITUTES. C. R. Nodder. Economic Research Bull. 2, Indian Central Jute Committee, Calcutta, 1945; 48 pp.; price 11 annas.
Cited in *Nature 158,* 316 (Aug. 31, 1946).
TTD:11-46.

MEASUREMENT OF IMPORTANT PHYSICAL CHARACTERS OF JUTE FIBER STRANDS AND THEIR RELATION TO YARN QUALITY. K. R. Sen & C. R. Nodder. Indian Central Jute Committee, Tech. Research Memoir 7; Calcutta, 1944; 20 pp.; price 14 annas.
Cited in *Nature 158,* 282 (Aug. 24, 1946).
TTD:11-46.

RETTING OF HEMP. I—FIELD RETTING OF HEMP IN IOWA. W. H. Fuller, A. G. Norman & C. P. Wilsie. Research Bull. 342, Agricultural Expt. Station, Ames, Iowa; 1946; 58 pp.
TTD:11-46.

RETTING OF HEMP. II—CONTROLLED RETTING OF HEMP. W. H. Fuller & A. G. Norman. Research Bull. 343, Agricultural Expt. Station, Ames, Iowa; 1946; 29 pp. TTD:11-46.

RETTING OF HEMP. III—BIOCHEMICAL CHANGES ACCOMPANYING RETTING OF HEMP. W. H. Fuller & A. G. Norman. Research Bull. 344, Agricultural Expt. Station, Ames, Iowa; 1946; 17 pp.
TTD:11-46.

Animal fibers I 2

BISULFITED WOOL. Chemical constitution and physical properties of bisulfited wool. E. G. H. Carter, W. R. Middlebrook & H. Phillips. *J. Soc. Dyers Colourists 62,* 203-11 (July, 1946).

The combined cystine of wool is studied with respect to the difference in reactivity of 4 subfractions toward sodium bisulfite and alkalis. Explanations advanced to account for the effect of bisulfite on the ease of extension, supercontraction, and setting of keratin fibers are examined. TTD:11-46.

CHEMISTRY OF WOOL. Combination of wool protein with heavy metal salts as a function of pH. I—Copper sulfate. Kermit S. LaFleur.

Am. Dyestuff Reptr. 35, 383-6, 395-8 (Aug. 12, 1946).

Because of the importance of Cr and Cu salts as mordants for improving the wash-fastness properties of dyes, the combination of wool protein with $CuSO_4$ was studied. Titration data from experiments on wool swatches are presented in 7 tables and 9 graphs. None of the data is considered sufficiently reliable for establishing the method of combination to wool but probably justifies reliance upon the trend. The desirability of examining the behavior of wool toward other heavy metals, particularly Cr, is indicated.
TTD:11-46.

SILK SITUATION. Interesting review of silk situation. H. R. Mauersberger. *Rayon Textile Monthly 27,* 489-90 (Sept. 1946).

"Raw Silk in the American Market" (Judith Metzger) is summarized. TTD:11-46.

WOOL SHRINKAGE. Effect of hydrogen peroxide in presence of copper sulfate on shrinkage of wool. J. Anderson, Australian Wool Realization Commission. *Nature 158,* 554 (Oct 19, 1946).

Shrinkage of wool fabric was lowered from 37% to 3% of the initial area by a pretreatment in a boiling solution of 0.4% H_2O_2 and 0.2% $CuSO_4$ at pH 4.2. Unlike other shrinkproofing agents, extensibility and recovery from deformation are not impaired.
TTD:11-46.

WOOLENS AND WORSTEDS. Difference between woolens and worsteds. Louis A. Fiori. *Cotton* (Atlanta) *110,* No. 7, 66-70 (July, 1946).

The distinguishing characteristics of woolen and worsted yarns and fabrics are considered and discussed in some detail, it being pointed out that in woolens the grades, qualities, fibers, and fiber lengths may be mixed to a certain degree while in worsteds the grades, qualities, fibers, and fiber lengths must be perfectly matched. It is emphasized that the woolen industry does not utilize only the raw materials that are unsuitable for the worsted industry: the essential distinguishing factor between the 2 yarns lies in the mechanical action through which the wool passes from raw material to thread. TTD:11-46.

SILK INDUSTRY—SCOPE FOR FURTHER DEVELOPMENT IN INDIA EXAMINED. E. V. S. Maniam, Bureau of Economic Research, Cawnpore, India; 1945; 28 pp.
Reviewed in *J. Sci. Ind. Research (India) 5, 27* (July, 1946). TTD:11-46.

Artificial fibers I 3

ALGINIC ACID DIACETATE. N. H. Chamberlain, G. E. Cunningham & J. B. Speakman, Leeds Univ. *Nature 158,* 553 (Oct. 19, 1946).

Alginic acid yarn can be acetylated to the diacetate

without loss of fibrous structure by using acetic anhydride in benzene (H_2SO_4 or $HClO_4$ catayIst). The diacetate swells in water and is soluble in 0.5 *N* $CaCl_2$ or in 80% acetone. TTD:11-46.

Cellulosic rayons — I 3 a

LEAD FOR RAYON SPINNING. Present needs for lead in viscose rayon spinning. J. H. Torrence. *Rayon Textile Monthly 27,* 471-2 (Sept. 1946).

The many important uses for Pb in buildings generally, but more particularly in rayon plants, are generally reviewed. TTD:11-46.

RAYON. Water absorption in regenerated cellulose rayons. Anon. *Silk & Rayon 20,* 986 (Aug. 1946).

Varying the properties, particularly water absorbency, of viscose rayons by the use of formaldehyde resins is briefly reviewed. TTD:11-46.

RAYON. Three decades of rayon in fabrics. René Bouvet, Am. Viscose Corp. *Knitter 10,* No. 8, 28, 30, 32, No. 10, 30, 68 (Aug., Oct., 1946).

The development of rayon is reviewed. TTD:11-46.

RAYON. Spinning rayon by the continuous method. Kurt Lindquist, Aktiebolaget Cellull. *Textil och Konfektion 3,* 362-5 (Oct. 1946).

The continuous process developed by Industrial Rayon Corporation for spinning filaments from viscose or other cellulosic baths is described and illustrated as it is to be operated in Sweden in a new plant now under construction. TTD:11-46.

RAYON FIBER STRUCTURE. Influence of fiber structure of rayon on swelling and radial density. Herbert F. Schiefer, Nat'l. Bur. of Standards, & Richard T. Kropf, Belding Heminway Corticelli Co. *Textile Research J. 16,* 432-7 (Sept. 1946).

A report on textile research at the Textile Chemical Institute of the Mulhouse-Alsace Technical College. LWR TTD:11-46.

RAYON INDUSTRY OF JAPAN. H. Wickliffe Rose, Am. Viscose Corp. *Textile Bull. 70,* No. 9, 18, 20, 44 (July 1, 1946).

A report of the textile mission to Japan is briefly summarized. TTD:11-46.

VISCOSE RAYON. Outline of low alkali viscose process. M. Horio, Kyoto Imperial Univ. *Textile Research J. 16,* 498-9 (Oct. 1946).

A viscose process under consideration in Japan is discussed and some of the difficulties disclosed. LWR TTD:11-46.

VISCOSE RAYONS. Effect of aging of alkali cellulose on carboxyl content of rayons. J. P. Hollihan, Am. Viscose Corp. *Textile Research J. 16,* 487-9 (Oct. 1946).

Carboxyl-group determinations carried out on rayon yarns indicate only a very moderate increase in carboxyl content from the aging of the alkali cellulose. These data are in agreement with Pascu's mechanism for the aging process. LWR TTD:11-46.

VISCOSE REFINING. Rayonier Inc. Brit. P. 575 138. *Textile Mfr. 72,* 386 (July, 1946).

In processing refined chemical pulp containing not more than 0.15% extractable ether a cation-active quaternary ammonium compound is added before xanthation is completed. TTD:11-46.

IMPROVING PROPERTIES OF FIBRO. C. M. Whittaker, C. C. Wilcock, W. A. Armfield & H. W. Best-Gordon (to Courtaulds, Ltd.). Brit. P. 575 964. *Textile Mfr. 72,* 388 (July, 1946).

The water retention properties of cellulose fibers (particularly Fibro) are reduced by impregnation with a neutral solution of formaldehyde, organic acid, and an alkali metal or magnesium sulfate or chloride, and then drying and heating. TTD:11-46.

RAYON. A. Ruperti & R. Sallmann (to Ciba S. A.). Swed. P. 116 319, Sept. 16, 1944.

In the manufacture of filaments, tapes, foils, capsules and like products by spinning or coagulation from an alkaline composition into an acid coagulation bath the alkaline spinning composition is modified by introduction of a condensation product derived from an amide which contains oxygen linked to the amide N atom, and at least 1 aliphatic or cylo-aliphatic radical having at least 8 C atoms, or with water-soluble salts of such condensation products. The amide condensation is effected with HCHO or with a sulfonic acid, a hydroxypolycarboxylic acid, a polyhydroxy compound or an ether of such a compound having a hydroxy group linked to a chain of at least 2 C atoms. TTD:11-46.

RAYON. S. Landa & M. Landa (to Bata A.-G.). Swed. P. 116 944, Feb. 24, 1943.

A process for recovering spent coagulation baths employed in the manufacture of viscose rayon comprises passing CO_2 into the bath to precipitate $NaHCO_3$ after which the customary treatment for recovery of volatile S compounds is employed. TTD:11-46.

RAYON. R. Meier (to Texis S. A. Textile). Swed. P. 116 355, Feb. 28, 1942.

Making filaments, tapes, foils and the like from cellulose or cellulose derivative xanthates by coagulating the xanthate first in a bath containing sodium carbonate, and then in an inert medium at a temperature above that at which the xanthate ceases to be water-soluble. TTD:11-46.

RAYON. Ciba A.-G. Swiss P. 241 141 (addition to 237 388) Apr. 25, 1944.

A process for making alkali cellulose. TTD:11-46.

RAYON. Ciba A.-G. Swiss P. 241 211, Oct. 1, 1943.

A process for making filaments, tapes, foils, capsules and the like. TTD:11-46.

RAYON. Texis S. A. Textile Zurich. Swiss P. 242 165, Mar. 26, 1943.

A process for converting cellulose ethers into artificial products. TTD:11-46.

Protein fibers — I 3 b

PROTEIN FIBERS. Improving water resistance of protein rayons. Anon. *Dyer 96,* 177, 179-80 (Aug. 16, 1946).

The development of protein fibers is briefly reviewed, such rayons as Aralac, Ferretti's Lanital, I. C. I.'s Ardil, and Courtauld's Courlana being mentioned. The 2 cross linkages (cystine and salt) are considered with respect to improving the water resistance of protein rayons, the formaldehyde treatment being noted as probably the most satisfactory for this purpose. TTD:11-46.

HARDENING CASEIN FIBERS. R. Signer. Brit. P. 576 007. *Textile Mfr. 72,* 389 (July, 1946).

Dry-spun protein fibers, particularly those from caseinate solutions, are hardened by gaseous aldehydes or ketones in an atmosphere having an average relative humidity (i. e. 1/3-2/3 saturated with water vapor). TTD:11-46.

PROTEIN FIBER. R. Signer. Swed. P. 116 406, Oct. 22, 1943.

A process for making protein fibers by dry spinning from a composition which has been aerated and filtered before spinning. To improve the properties of the composition and the effect of aeration the protein material is homogenized before aeration. TTD:11-46.

PROTEIN FIBER. R. Signer. Swed. P. 116 519, Dec. 29, 1942.

A protein solution for spinning into filaments is modified by addition of unsaturated organic compounds such as soaps, or compounds which form soaps in the alkaline protein solution. TTD:11-46.

PROTEIN FIBERS. Rudolf Signer. Swiss P. 241 197, Dec. 14, 1942.

Process for dry spinning of protein filaments from aqueous solutions. TTD:11-46.

CASEIN FIBERS. Rudolf Signer. Swiss P. 241 388, Aug. 2, 1941.

A process for preparing casein for the dry spinning operation in filament manufacture. TTD:11-46.

PROTEIN FIBERS. Rudolf Signer. Swiss P. 243 074, Apr. 20, 1944.

An improved process for making protein fibers by dry spinning from alkaline solutions. TTD:11-46.

Synthetic fibers — I 4

HIGH POLYMER SUBSTANCES. H. Mark, Polymer Research Inst. *Brit. Plastics 18,* 352 (Aug. 1946).

A lecture on the classification of high polymer compounds is briefly summarized. TTD:11-46.

SYNTHETIC FIBERS. N. V. Bataafsche Petroleum Mij. Swiss P. 242 168, Apr. 5, 1944.

A process for making filaments, fibers, tapes, foils and similar articles. TTD:11-46.

INJECTION MOLDING OF NYLON. Russell B. Akin, E. I. duPont de Nemours & Co. *Modern Plastics 23,* No. 12, 139-43 (Aug. 1946).

Injection molded articles described further demonstrate the versatility of nylon. TTD:11-46.

NYLON STAPLE FIBER promises many interesting new blends. Anon. *Rayon Textile Monthly 27,* 470-1 (Sept. 1946).

Nylon staple fiber as used in blends with other fibers is generally discussed. Its use in fabrics gives promise of improved weaving characteristics.

HAM TTD:11-46.

SYNTHETIC FIBERS. Chemisches Industrielles Laboratorium A.-G. Swiss P. 242 355, June 2, 1945.

A blended product suitable for use as a plastic composition, lacquer, adhesive or impregnating composition or for the production of artificial fibers and foils, and a process for making this mixture. TTD:11-46.

VELON. Manufacture of Velon monofilaments. Geo. P. Rowland, Jr., Firestone Tire & Rubber Co. *Rayon Textile Monthly 27,* 540-2 (Oct. 1946).

Velon (vinylidine chloride—vinyl chloride) has been used for insect screens, upholstery, etc., for several years. Its inertness to chemicals and its non-flammability are important characteristics. Monofils of this material, now under experiment, are expected to lead to its use in dress fabrics.

HAM TTD:11-46.

VINYL RESIN FILMS. Unsupported sheeting for upholstery. Anon. *Modern Plastics 23,* No. 12, 97-8 (Aug. 1946).

The use of an unsupported film (i. e., without fabric backing) for upholstery is practicable. TTD:11-46.

POLYTHENE. R. B. Richards (to Imperial Chemical Industries, Ltd.). Brit. P. 575 296. *Textile Mfr. 72,* 386 (July, 1946).

Elastic filaments are produced from polythene (with a molecular weight preferably 15,000-30,000) by solidifying the filaments and winding on, under tension, at a rate at least 3 times that of filament formation. TTD:11-46.

BRISTLES. A. F. Smith (to E. I. duPont de Nemours & Co.). Swed. P. 116 454, Jan. 27, 1940.

In the manufacture of thick tapered monofils of nylon or the like, the taper is imparted by continuous variation in the speed of drawing or extrusion. The final elongation is about 200 to 700%, depending on the desired taper and other properties. TTD:11-46.

VINYL POLYMERS. Société Rhodiaceta. Swiss P. 242 166, Apr. 14, 1943.

A process for converting polyvinyl chloride into artificial products; and products made by the new method. TTD:11-46.

SYNTHETIC FIBERS. Lonza-Werke Elektrochemische Fabriken GmbH. Swiss P. 242 326, Dec. 18, 1942.

A process for making fibers and filaments from mixed acetals of vinyl polymers. TTD:11-46.

SYNTHETIC FIBERS. I. G. Farbenindustrie A.-G. Swiss P. 242 352, June 20, 1940.

A process for making filaments, tapes, foils and other flat-surfaced products from nitrogenous condensation polymers. TTD:11-46.

SYNTHETIC FIBER PRODUCTS. Societa Paravinil. Swiss P. 242 405, Nov. 7, 1944.

A process for making elastic articles by drafting and twisting, starting with a blend containing polyvinyl chloride. TTD:11-46.

NYLON. Société Rhodiaceta. Swiss P. 243 344, Mar. 24, 1945.

A plastic composition formed by blending components having superpolyamides as the base ingredient. TTD:11-46.

Fiber applications — I 5

IMPREGNATED FELTED FIBERS. J. Rogerson & F. W. Warren (to Dunlop Rubber Co.). Brit. P. 575 264. *Textile Mfr. 72,* 386 (July, 1946).

Improved strength and abrasion resistance are imparted to felted fiber sheets by impregnation with a mixture of a partially polymerized polyvinyl resin and a plasticizer. TTD:11-46.

PLASTICS. J. Henke. Swiss P. 243 851, Dec. 1, 1945.

A process for making shaped articles from fibrous materials. TTD:11-46.

INORGANIC FIBERS — II

GLASS-RESIN LAMINATES. Glass fabric melamine resin laminates. C. J. Straka, Westinghouse Electric Corp. *Plastics 5,* No. 2, 62-6, 68-70, 80-1 (Aug. 1946).

The many varied uses of melamine resins, reinforced with Fiberglas fabric, are surveyed and the method of manufacture described and illustrated. TTD:11-46.

TOUGH GLASS. Anon. *Ind. Bull. A. D. Little, Inc.* No. 226 (Nov. 1946).

Laminated layers of glass fiber cloth impregnated with suitable resins, developed during the war for a body armor, are discussed with respect to possible use in luggage, station wagon bodies, fishing fly rods, furniture, etc. TTD:11-46.

GLASS FIBER. H. P. Hood (to Algemeene Kunstvezel Mij.). Swed. P. 116 989, Nov. 4, 1939.

Making colored glass fiber by introducing a reducible compound of Cu or Pb into the glass batch, and heating the drawn fibers (below 425°C) about 1 hr. in presence of a reducing gas. TTD:11-46.

GLASS FIBER. S. A. des Manufactures des Glaces et produits Chimiques de Saint-Gobain, Chauny & Cirey. Swiss P. 243 553, Aug. 15, 1944.

Process and apparatus for manufacture of fibers, particularly glass fibers. TTD:11-46.

GLASS FIBER. Chas. A. Helbling. Swiss P. 243 850, Oct. 27, 1943.

Dimensionally stable shaped articles containing glass fiber, and a process for making them. TTD:11-46.

FIBER TO YARN — III

Fiber preparation — III 1

CARD CYLINDER BEARINGS. Anon. *Saco-Lowell Bull. 18,* No. 2, 27-9 (Aug. 1946).

Replacement of main cylinder bearings is recommended when wear amounts to 0.020". The method of installation is described and illustrated in some detail. TTD:11-46.

CARDING. A new Platt Bros. card. A. Johnels, Gamlestadens Fabrikers AB. *Textil och Konfektion 3,* 427-8 (Nov. 1946).

Illustrated description of a new cotton card made by Platt Bros. in England. TTD:11-46.

CARDING COTTON. Drafting slivers and separating fly on cotton cards. Anon. *Textile Recorder 64,* No. 761, 48-9 (Aug. 1946).

Two developments in cotton carding are discussed: the application of drafting roller to the delivery head as the sliver is delivered from the doffer (see TTD: 1-44 (Sept.) p. 8) and the recovery of spinnable fiber from lickerin motes by means of a card-fly separator. TTD:11-46.

CARDING FOR CORDAGE YARNS. Technologist. *Fibres 7,* 221-4 (Aug. 1946).

Fiber for cordage yarns is cleaned and converted into sliver, formed by carding at less expense than by hackling and spreading. This process for both soft and hard fibers, on breaker and finisher cards, is described and illustrated. TTD:11-46.

COMBING. Nasmith's Inventions, Ltd. Swiss P. 243 575 & 243 576, Mar. 5 & Oct. 14, 1942.

Improved comber for use in making combed yarns. TTD:11-46.

COTTON COMBER. H. von Mattenberg. *Cotton* (Atlanta) *110,* No. 6, 67-9, No. 7, 72-4 (June, July, 1946).

The various motions and operations of a comber are studied and suggestions given for correcting faulty work. The change from the older brush drive to chain drive is considered an important improvement. A comber, coincident with its major function, is valuable as a tester because if it is set for a particular standard grade of staple it reveals by an increase of waste that there is a lower grade of cotton present. Practical examples of sliver calculations are given. TTD:11-46.

FIBER RESISTANCE in worsted drawing. Durant Anthony. *Can. Textile J. 63,* No. 15, 36-7 (July 26, 1946).

The control of twist in drawing is discussed and the effect of excessive or insufficient twist considered. Effective fiber-to-fiber frictional resistance is important in producing a level yarn. TTD:11-46.

OPENING. Auto-feed bale fiber opener. Anon. *Textile Weekly 38,* 202, 204 (Aug. 2, 1946).

A new technique in converting fibrous material from bale to lap form embodies 4 distinct stages: opening, dust removal, blending, and cleaning. TTD:11-46.

WOOLEN CARDING—contributory factors to working efficiency. L. Bellwood. *Textile Mfr. 72,* 347-50, 400-1, 404 (July, Aug. 1946).

A general discussion of types of clothing and machines, condensers, hoppers, feed roller, scribblers, carders, etc. Fancy rollers, tension in condensers, grinding, count variation, and fiber breakage are other factors surveyed. TTD:11-46.

Spinning **III 2**

CONTROLLED DRAFT SPINNING. Controlled draft assembly for spinning. Anon. *Saco-Lowell Bull. 18,* No. 2, 1-9 (Aug. 1946).

The Shaw controlled draft system is described and essential parts of the controlled draft unit illustrated and explained in some detail. TTD:11-46.

MULE MAINTENANCE AND SETTING. W. Breakell. *Textile Weekly 37,* 1254, 1256, 1258, *38,* 26, 28, 66, 68, 70 (June 28, July 5, 12, 1946).

Some practical notes for spinners include suggestions for setting the strap fork lever, the in and out changes of the long lever, and the backing-off chain-carrier pulley. TTD:11-46.

SPINNING PACKAGES. Volume of yarn in spinning packages. Anon. *Saco-Lowell Bull. 18,* No. 2, 32-7 (Aug. 1946).

Because of the present trend toward larger spinning packages, the amount of yarn which can be put into a spinning bobbin in relation to its physical dimensions is investigated. It is pointed out that a larger barrel diameter gets much better running work and possibly an increased spindle speed with little, if any, loss in yarn. TTD:11-46.

SPINNING PRODUCTION. Incentive plan for spinners increases production and pay. François E. Cleyn, Spinners, Ltd. *Textile World 96,* No. 7, 107 (July, 1946).

Variable-speed drives on frames, adjustable by operators, and a proper incentive rate of pay should increase production 10-15%. TTD:11-46.

WORSTED SPINNING: factors affecting ring travelers. Anon. *Textile Mfr. 72,* 355 (July, 1946).

The functions of the traveler and considerations governing its choice and type (e. g. spindle speed, type of material being processed, length of lift, etc.) are briefly discussed. TTD:11-46.

WORSTED YARN SPINNING. Making worsted yarn by cotton system. Anon. *Rayon Textile Monthly 27,* 478 (Sept. 1946).

Mass production of fine quality worsted yarns by the cotton spinning process (in a Georgia mill) is briefly noted.
HAM TTD:11-46.

SPINNING BOBBINS. J. Noguera (to Casablancas High Draft Co., Ltd.). Brit. P. 575 743. *Textile Mfr. 72,* 388 (July, 1946).

The creel of a spinning machine has an improved bobbin suspender which makes the attachment and removal of the bobbin easier and quicker. TTD:11-46.

SPINNING SPINDLES. H. A. Boyd (to J. & T. Boyd, Ltd.). Brit. P. 575 878. *Textile Mfr. 72,* 388 (July, 1946).

On a spinning or twisting machine an improved drive for spindles or fliers consists of an adjustable intermediate whorl interpolated in the drive between the spindle and the main driving drum from which it is driven by a primary tape and through a secondary tape drives the spindle. Carried on a movable bracket, it can stop the spindle through the secondary tape while allowing the primary tape to run. TTD:11-46.

ROVING STOP MOTION. M. Warnock (to J. & T. Boyd, Ltd.). Brit. P. 575 974. *Textile Mfr. 72,* 389 (July, 1946).

In spinning flax, hemp, jute, etc., a stop motion prevents feeding of roving immediately upon yarn breakage. TTD:11-46.

THREAD CONTROL. L. H. Colton (to I. L. Berridge & Co., Ltd.). Brit. P. 576 001. *Textile Mfr. 72,* 388 (July, 1946).

An automatic thread control feeds thread at varying predetermined rates through a pair of conical rollers. TTD:11-46.

SPINNING. Albert Morf (to Spindel-Motoren-und Maschinenfabrik A.-G.). Swiss P. 241 060, May 8, 1944.

A method for damping vibrations of fast-running spindles. TTD:11-46.

SPINNING. Juan Junyent Benet. Swiss P. 241 389, July 1, 1943.

A device for driving the pirns on textile machines. TTD:11-46.

SPINNING. Anton Portmann. Swiss P. 242 820, Nov. 30, 1944.

An improved drive for spindles on spinning frames and winders. TTD:11-46.

Winding — III 3

WINDING. Care and maintenance of Saco-Lowell lap winders. Anon. *Saco-Lowell Bull. 18,* No. 2, 10-13 (Aug. 1946).

A thorough inspection should be made yearly. Some details of maintenance are given. TTD:11-46.

WINDING FRAME. F. Osbourne (to William Ayrton & Co., Ltd.). Brit. P. 575 714. *Textile Mfr. 72,* 387-8 (July, 1946).

A measuring motion on a winding frame has a measuring wheel (9″ in circumference) that measures a predetermined length of thread and then stops the machine. TTD:11-46.

WINDING. G. W. Rushton. Brit. P. 575 790. *Textile Mfr. 72,* 386 (July, 1946).

In winding cheeses the speed of the bar of an improved traverse motion is greater at the ends than at the central portion of the travel. TTD:11-46.

WINDING. Maschinenfabrik Schärer. Swiss P. 243 579, Oct. 25, 1943.

An improved winder for winding tubular cops. TTD:11-46.

Yarn processing — III 4

YARN TREATMENT. C. Christiansen & G. O. K. Rüsch. Swed. P. 116 489, Mar. 4, 1944; Swiss P. 242 329, Nov. 15, 1944.

A braking device for yarn, especially for use on spinning frames, winders and looms, has 2 parallel cylinders so arranged that 1 drum is set in motion by the motion of the yarn, while the yarn slides over the other cylinder in the opposite direction to that in which the cylinder rotates. TTD:11-46.

CRIMPING. G. Heberlein, E. Weiss & T. Odinga (to Heberlein & Co.). Swed. P. 116 988, Aug. 29, 1944.

A continuous process for crimping yarns by imparting a high twist in the direction opposite to that of the original twist. TTD:11-46.

Yarn products — III 5

RAYON TIRE CORD. Dipping of rayon tire cord. C. H. Beaver. *Rayon Textile Monthly 27,* 467-9 (Sept. 1946).

Dipping rayon tire cord (by use of apparatus quite similar to the slasher used for cotton warp) to prepare it for further processing is described.
HAM TTD:11-46.

RAYON TIRE CORD. Manufacture of tire cords from spun rayon yarn. K. Kobayashi, Kyoto Imperial Univ. *Textile Research J. 16,* 500-1 (Oct. 1946).

The manufacture of rayon tire cords during the war is described briefly.
LWR TTD:11-46.

TWINE. Chr. & O. Schweizer & André Blum. Swiss P. 243 577, Nov. 27, 1944.

Wrapping twine and an improved method for making it. TTD:11-46.

FANCY YARN. Emil Wild & Co. Swiss P. 243 578, Apr. 12, 1945.

Method and apparatus for processing fancy yarns. TTD:11-46.

YARN TO FABRIC — IV

AMERICA'S FARBICS. Zelma Bendure & Gladys Pfeiffer. Macmillan Co. New York City; 1946; 688 pp.; price $10.00.

Reviewed in *Rayon Textile Monthly 27,* 569 (Oct. 1946). TTD:11-46.

Yarn preparation — IV 1

WARP-YARN BREAKAGE. Factors in warp-yarn breakage. H. E. Wenrich. *Rayon Textile Monthly 27,* 473-4 (Sept. 1946).

Proper yarn conditioning in preparation for weaving is stressed. The more yarn is handled, it is pointed out, the greater are the chances for defects. Silk yarns, not so clean or uniform as synthetics, present problems in warping for which practical remedies are suggested. TTD:11-46.

YARN PROCESSING. Heberlein & Co. Swiss P. 240 969, Nov. 2, 1943.

A process for improving the properties of staple fiber yarns, especially cotton yarns. TTD:11-46.

WARP BEAMS. Cuprum A.-G. Swiss P. 243 073, Aug. 12, 1941, 243 316, Aug. 25, 1941.

Process and apparatus for preparing rayon warp beams. TTD:11-46.

Warp sizing — IV 2

SIZING. Step forward in sizing. Anon. *Textile Weekly 38,* 314, 316 (Aug. 16, 1946).

Various starch sizes for general use and some for special uses (e. g., Milsize and Wilpen of Corn Products Co., Ltd.) are briefly discussed. TTD:11-46.

SLASHER CONTROL. Mechanical speed control is easily installed on slashers. Geo. Ransom. *Textile Age 10,* No. 8, 58, 60, 62 (Aug. 1946).

Mechanical variable speed control for slasher drives controls moisture, stretch, and tension of yarn. A mill installation is described and illustrated. TTD:11-46.

Weaving — IV 3

HAND LOOM INDUSTRY IN INDIA. M. P. Gandhi. *J. Sci. Ind. Research (India) 5,* 63-75 (Aug. 1946).

Various economic aspects of the industry are considered; perhaps the most important one is that after agriculture it is the largest single industry of the country, employing over 80% of the textile workers. TTD:11-46.

RAYON FABRICS. 500 weaves are standard for rayon fabrics. René Bouvet, Am. Viscose Corp. *Textile World 96,* No. 7, 135, 137, 139 (July, 1946).

Most broad-woven yardage is represented in 20-30 general classes. Twenty-one representative weave tables, giving the warp and the filling, are shown. TTD:11-46.

WEAVING EFFICIENCY. How to maintain weaving shed efficiency. B. G. Sukthankar. *Indian Textile J. 56,* 929-30 (July, 1946).

Practical suggestions for maintaining efficiency, defined as the ratio of actual work to ideal work, are given. TTD:11-46.

WEAVING EFFICIENCY. Weft problems in relation to weaving efficiency. Tuner. *Textile Mfr. 72,* 351-2 (July, 1946).

Some common problems in weaving woolen weft (e. g., sloughed weft, weft cutting, etc.) are briefly discussed. TTD:11-46.

RUBBER FABRICS. Pirelli Societa per Azioni. Swiss P. 241 882, Apr. 22, 1944.

A process for feeding yarn to the rubber component (which may or may not be itself covered with a textile yarn) on textile machines, e. g., in weaving elastic fabrics. TTD:11-46.

Looms — IV 3 a

AUTOMATIC FILLING MOTION. Eugene P. Schremp. *Textile World 96,* No. 7, 178 (July, 1946).

Brief practical suggestions for loom fixers on adjustments of transfer and of thread cutter and revoker combination. TTD:11-46.

DOBBY LOOM. Double-index dobby-chain barrel on wrong time. P. G. Alexander. *Rayon Textile Monthly 27,* 475 (Sept. 1946).

A loom fixer is cautioned against putting the chain dial on the wrong time. TTD:11-46.

LOOM MECHANISM, settings and output.—V. S. A. G. Caldwell. *Textile Mfr. 72,* 368-9 (July, 1946).

The warp release and let-off motions on jute and linen weaving looms are discussed, particularly with reference to reduction of warp breakages. TTD:11-46.

NEW CARPET LOOM. Anon. *Textile Weekly 38,* 124 (July 19, 1946).

A new loom with 24" beams (adaptable for 36") produces varying widths of carpet and has an improved wire motion and a new automatic let-off motion. TTD:11-46.

CIRCULAR LOOM. C. Christiansen & G. O. K. Rüsch. Swed. P. 116 497, Mar. 4, 1944.

In a circular loom for weaving tubular fabrics such as hose, the filler yarn is pressed in between the warp yarns by means of a series of rotating sections having fingers for pressing in the filling yarns at the desired moment. TTD:11-46.

WEAVING. Gebrüder Sulzer A.-G. Swiss P. 240 967, May 15, 1943.

A gripper loom with stationary weft thread bobbins. TTD:11-46.

WEAVING. Andreas J. Morvay. Swiss P. 242 327, July 19, 1943.

An improved loom design. TTD:11-46.

ART OF LOOM TUNING. J. W. Hutchinson. Published by the author. Bradford, England; 1946; 600 pp.; price 1£ 1s.

Reviewed in *Can. Textile J. 63,* No. 17, 10, 12 (Aug. 23, 1946); *Textile Weekly 38,* 80 (July 12, 1946). TTD:11-46.

Loom parts — IV 3 b

SHUTTLE. Gaudenzio Maestroni (to Fabbrica Navette gia Federle & cia). Swiss P. 241 198, Feb. 6, 1943.

An improved shuttle fitted with a race bobbin for use in weaving. TTD:11-46.

WEAVING. Maschinenfabrik Rüti vormals Caspar Honegger A.-G. Swiss P. 241 878, Mar. 26, 1943.

New bobbin for use with weft yarns. TTD:11-46.

SHUTTLE. Maschinenfabrik Rüti vormals Caspar Honegger A.-G. Swiss P. 241 879, June 23, 1944.

An improved shuttle with hinged cover for hose loom cops fitted for internal winding off of the weft yarn. TTD:11-46.

WEAVING. Urlit-Werk J. Inglin & Cie. Swiss P. 242 330, Nov. 13, 1944.

An improved weft bobbin for use on looms. TTD:11-46.

SHUTTLE. Jakob Müller. Swiss P. 242 821, Feb. 3, 1945.

A shuttle with inset weft bobbin for use on ribbon looms. TTD:11-46.

WEAVING. Fratelli Marzoli & Cia. Swiss P. 243 075, Apr. 12, 1943.

Device for positive drive of weft yarns through the shed on looms. TTD:11-46.

WEAVING. Patra Patent Administration & Trading Co. Swiss P. 243 319, Apr. 5, 1945.

Improved construction of a shaft of healds for use on looms. TTD:11-46.

WEAVING. Saint Frères S. A. Swiss P. 243 580, Dec. 16, 1942.

A device for combing and classifying warp yarns and for drawing weft yarn through the bottom of the shed on a circular loom. TTD:11-46.

Control devices — IV 3 c

RAYON SOILING. Prevention of soiling in rayon weaving shed. Christopher S. Jones. *Indian Textile J. 56,* 919-20 (July, 1946).

Weaving rayon requires care to prevent soiling of warp and weft; prevention is preferable to any cure. TTD:11-46.

SHUTTLELESS LOOM CONTROL. C. H. Baddeley. Brit. P. 575 804. *Textile Mfr. 72,* 386 (July, 1946).

With a minimum of effort and friction weft thread is drawn from a cheese by means of an improved feed control on a shuttleless loom. TTD:11-46.

SUPER SHUTTLE CONTROL in weaving. Anon. *Textile Weekly 38,* 114, 116, 118 (July 19, 1946).

A newly patented weaving loom shuttle swell, Macro (Super Shuttle Control Ltd.) can be fitted to all types of looms but is particularly adaptable for nonautomatic looms. Its action is described and illustrated and its major features outlined. TTD:11-46.

Fabric construction — IV 3 d

RAYON BASKET WEAVE has interesting future. Anon. *Am. Wool Cotton Reptr. 60,* No. 31, 13-14, 44-5 (Aug. 1, 1946).

A rayon fabric is critically compared with a cotton material similar in construction and cost, revealing less shrinkage in width and greater evenness for the rayon. Varying fiber combinations for color, softness, flexibility, and smoothness is suggested. TTD:11-46.

RAYON WEAVING. Avoiding faults in spun rayon striped worsteds: alternative methods of beaming and weaving. Anon. *Silk & Rayon 20,* 990-2 (Aug. 1946).

Effect stripes of rayon and rayon mixtures in worsted suitings are frequently sources of trouble because of the difference in properties between the rayon and the wool. Blistering or cockling of the ground cloth (from moisture) and damaged or cut weft (from too hard-twisted effect yarns) are 2 common troubles considered for which remedies are suggested. TTD:11-46.

VERSATILE FABRICS. Weaving versatility into fabrics. Wm. Schack. *Plastics 5,* No. 1, 40-1 (July, 1946).

Fabric designs incorporating plastic elements are briefly discussed and illustrated. TTD:11-46.

WEAVE EFFECTS. Fancy worsted suitings for export; raised woolen overcoatings for export; sportswear tweeds and worsteds; woolen and worsted scarf squares. Portex. *Wool Record & Textile World 70,* 294, 296-7, 350-1, 404, 406, 517-18, 520 (Aug. 8, 15, 22, Sept. 5, 1946).

Various weave designs and structural details of fabrics for wearing apparel are given and briefly discussed. TTD:11-46.

HIGH PRESSURE HOSE. C. Christiansen & G. O. K. Rüsch. Swed. P. 116 862, Aug. 7, 1941.

A circular loom for weaving high pressure hose or the like is fitted with rotating sections which are adapted to pack the filling yarns as tightly as possible between the warp yarns. TTD:11-46.

FOUNDATIONS OF FABRIC STRUCTURE. John H. Strong. Nat'l. Trade Press, Ltd., London; 1946; 254 pp.; price 21s.

Reviewed in *Textile Recorder 64,* No. 761, 45 (Aug. 1946). TTD:11-46.

Weave defects **IV 3 e**

MISPLACED WARP THREADS. D. C. Snowden, Leeds Univ. *Wool Record & Textile World 70.* 513, 515-16 (Sept. 5, 1946).

Misplacing broken threads in healds and reed dents is a fault that entails increased mending. Practical suggestions, particularly for weaving trainees, for avoiding this defect are given. TTD:11-46.

Knitting **IV 4**

WARP KNITTING. Story of warp knitting. Thos. H. Johnson, Am. Viscose Corp. *Indian Textile J. 56,* 925-7 (July, 1946).

A brief general review, emphasizing the importance of the tricot machine includes mention of such machines as: Milanese, Plain Raschel, Kayloom, Jacquard Raschel, Marratti, Simplex, and Cut-Presser. TTD:11-46.

STOCKINGS. A. W. Eley. Published by the author, Leicester, England; 1946; 167 pp.; 12s 6d.

Reviewed in *Can. Textile J. 63,* No. 17, 12 (Aug. 23, 1946). TTD:11-46.

Knitting machines **IV 4 a**

KNITTING MACHINES. Mill diversifies with 400-needle machines. O. B. Graham. *Textile World 96,* No. 7, 125, 127 (July, 1946).

The addition of new seamless models and rebuilding of low-needle machines to 400-needle capacity are discussed. TTD:11-46.

KNITTING. Henry H. Holmes and John C. H. Hurd (to Wildt & Co., Ltd.). Swiss P. 240 968, Dec. 3, 1943.

An improved circular knitting machine. TTD:11-46.

Knitting machine parts **IV 4 b**

KNITTING. Schaffhauser Strickmaschinenfabrik. Swiss P. 243 321, Feb. 2, 1945.

Tongue lift on flat bed knitting machines fitted with jacquard attachment and with double coupling. TTD:11-46.

KNITTING. Robt. Steiger. Swiss P. 243 512, addition to 221 000; May 11, 1944.

Machine for straight-line heald knitting, having an automatic stop motion device. TTD:11-46.

Fabric construction **IV 4 d**

STIFFENED FABRICS. Heinz Ginzel. Swiss P. 243 076, Oct. 15, 1943.

A method of producing fine fabrics, suitable as material for the manufacture of noncurling chemically stiffened fabrics. TTD:11-46.

Pile fabrics **IV 5**

BRUSHING PILE FABRICS. A. T. Herron. Brit. P. 575 579. *Textile Mfr. 72,* 386-7 (July, 1946).

Pile fabrics are alternately brushed in opposite directions by different sets of brushes on endless bands. TTD:11-46.

Narrow fabrics **IV 6**

NARROW FABRICS. Umberto Lamperti. Swiss P. 242 328, Feb. 28, 1944.

A process for use of ribbon looms in weaving elongated fabrics having portions with gradually varying width, e. g., webbing and women's sleeves. TTD:11-46.

Fancy fabrics **IV 7**

MACHINE LACE WEAVING with dissolving draw threads. Anon. *Am. Wool Cotton Reptr. 60,* No. 35, 13 (Aug. 29, 1946).

In weaving lace on wide machines, instead of cotton draw threads and the consequent costly hand labor required, synthetic threads are used, which may be easily and quickly separated from the individual lace strips. In 1 of the 2 patented methods briefly outlined an acetate rayon draw thread is used, readily dissolved by acetone; in the other method Vinyon is used which upon heating at a carefully regulated temperature melts sufficiently so as practically to disappear into the lace threads at the edge. TTD:11-46.

Fabric processing **IV 8**

CLOTH DETWISTING MACHINE uses reversible motor. Anon. *Textile World 96,* No. 7, 157 (July, 1946).

Cook Machine's unit for a cloth opening and extracting range receives cloth in rope form and untwists it in a revolving cage. Some advantages include: 1-man operation, switch-handle control of twist, and 80% reduction in beater speeds when used with scutcher. TTD:11-46.

Fabric applications **IV 9**

COATED FABRICS. Bright future for coated fabrics. Anon. *Modern Plastics 23,* No. 11, 104-7 (July, 1946).

Greatly increased use of vinyl coated fabrics, aided by war-stimulated research, is forecasted. TTD:11-46.

COATINGS. Preserve and protect with coatings. Jack D. Stratton. *Plastics 5,* No. 3, 21-3 (Sept. 1946).

The desirable qualities imparted to various base materials by plastic coatings are briefly reviewed. Chemosize (that eliminates further starching during the life of a garment) is a permanent sizing mentioned for washable fabrics. TTD:11-46.

RESIN IMPREGNATED FABRICS. Textiles on wall. Richard L. Bean. *Plastics 5,* No. 2, 40-1, 74 (Aug. 1946).

Wallfab (Peerless Plastic Products) is a fabric wall covering (in varying patterns) impregnated with a synthetic resin whose manufacture and use are described and illustrated. TTD:11-46.

VINYL RESIN COATING. Versatile vinyls find new application. J. L. Foster, B. F. Goodrich Chemical Co. *Plastics 5,* No. 2, 75-7 (Aug. 1946).

Applications of Geon latex to fabrics and threads are generally discussed. TTD:11-46.

VINYL RESIN COATINGS. New material for upholstery. Anon. *Modern Plastics 23,* No. 12, 91-3 (Aug. 1946).

Vinyl resin coatings for upholstery fabrics are briefly discussed. TTD:11-46.

AIRPLANE WING COVERING. Olacar Marine (to S. A. D'Exploitation des Brevets Jean Mercier). Brit. P. 575 764. *Textile Mfr. 72,* 388 (July, 1946).

A nonslip covering, especially for airplane wings, consists of randomly arranged cereal straw embedded in vulcanized rubber. TTD:11-46.

FABRICATING LAMINATES. S. Kelson. Brit. P. 575 990. *Textile Mfr. 72,* 388 (July, 1946).

Flexible laminated fabric sheets containing a thermosetting adhesive are produced on a former under pressure and exposure to infrared radiation. TTD:11-46.

FIBER BOARD. K. A. Gustavsson & J. V. H. Olson (to Kooperativa Förbundet Förening). Swed. P. 116 330, Feb. 27, 1943.

A thin flexible layer of paper, paper board, textile fabric or the like is cemented to sheets of wood fiber product such as wall board by means of an adhesive colloid which is applied as a nontacky film and is rendered tacky by heat. TTD:11-46.

LAMINATES. G. Heberlein, A. Bodner & E. Weiss (to Heberlein & Co.). Swed. P. 116 584, Jan. 11, 1937.

Stiffened washable fabrics for personal wear are made by stiffening an underlayer or intermediate layer of fabric either with a swelling or parchmentizing agent or by starch sizing, and joining the stiffened layer by means of a thermoplastic intermediate layer to the outer layer of fabric. TTD:11-46.

GAUZE. Spinnerei & Weberei Glattfelden. Swiss P. 243 077, June 21, 1944.

Process and apparatus for producing gauze fabrics. TTD:11-46.

CHEMICAL RAW MATERIALS V

Plastics V 1

FABRIC BASE PLASTICS. I. A Reconnaissance. K. W. Pepper, F. G. Barwell & D. K. Hale. *J. Soc. Chem. Industry 65,* 153-64 (June, 1946).

The applicability of the voids theory (the relationships between the properties of the components and the properties of the products) to laminates consisting of a loomstate cotton cambric impregnated with a phenolic resin is studied. The effect of variations in the bonding pressure and in the resin content on the density, tensile strength, Young's modulus, shear strength, compressive strength and water absorption of the products was determined. Despite general agreement with the theory 2 important anomalies were revealed: (1) the tensile strength of apparently fully bonded boards (20% resin content) was lower than expected from values obtained at higher resin contents, (2) the interlaminar shear strength was low and dependent on resin content. Also, from examination of desized and scoured cambric it was found that wax on the surface of the fibers adversely affects impregnation and adhesion between resin and fibers. TTD:11-46.

PLASTICS. How plastic components make better repellents. John Delmonte. *Plastics 5,* No. 3, 24, 26, 30, 80 (Sept. 1946).

Among plastics uses reviewed their application to textiles is briefly mentioned. TTD:11-46.

PLASTICS FABRIC. Developing fabrics market. J. F. Nicholl, Chicopee Mfg. Corp. *Plastics 5,* No. 3, 32-4, 79-80 (Sept. 1946).

Fabrics woven of plastics monofils such as Saran (e. g., Chicopee's Lumite) are discussed as to their origin, production and uses. TTD:11-46.

Cellulose derivatives V 1 a

CELLULOSE ACETATE. Know your acetates. W. O. Bracken, Hercules Powder Co. *Plastics 5,* No. 2, 28-30, 32, 73-4 (Aug. 1946).

Toughness, strength, and clarity of cellulose acetate plastics are properties that make for their ever increasing use. TTD:11-46.

CELLULOSE ACETATE ESTERS containing amino nitrogen. Thos. S. Gardner, Tennessee Eastman Corp. *J. Polymer Sci. 1,* 121-6 (Mar. 1946).

Nitrogen was introduced into cellulose acetate by the incorporation of amino acid groups. Cast films were examined for dyeing properties with wool-type dyes. Some of the N-acetyl amino acid derivatives of cellulose acetate are capable of being dyed with wool-type dyes.
LWR TTD:11-46.

CELLULOSE DERIVATIVES. Characterization of cellulose derivatives by solution properties: plasticizers as solvents. H. M. Spurlin, A. F. Martin & H. G. Tennent, Hercules Powder Co. *J. Polymer Sci. 1,* 63-74 (Mar. 1946).

The dimensional stability of molded thermoplastic articles is a function of the extent to which stresses are frozen into them on molding. The kind and amount of plasticizer may be varied to minimize the amount of these stresses. Viscosity and osmotic pressure determinations give fundamental information about polymer-plasticizer systems.

LWR TTD:11-46.

CELLULOSE ETHERS. Beta-aminoethoxyl- and beta-cyanoethoxylcellulose acetates. Thos. S. Gardner, Tennessee Eastman Corp. *J. Polymer Sci. 1,* 289-92 (Aug. 1946).

Mixed cellulose acetate-ethers prepared contain basic-type N groups whose films were dyed by xylene brilliant blue.

LWR TTD:11-46.

PROTEIN PLASTICS AND FIBERS. S. H. Pinner, B. X. Plastics, Ltd. *Brit. Plastics 18,* 313-18, 353-61 (July, Aug., 1946).

In a general review the growth of a purely synthetic plastic is traced and the present and potential value of protein products emphasized. (98 references.)

TTD:11-46.

CELLULOSE ETHERS. A. Ruperti (to Ciba S. A.). Swed. P. 116 633, June 13, 1944.

In making alkali cellulose with low moisture content, for conversion to cellulose ethers, a concentrated volatile alkali is employed, and the alkali solution is separated from the cellulose before swelling is complete. TTD:11-46.

WRAPPING FOIL. Bata Co. Swiss P. 241 975, Oct. 2, 1944.

A process for decreasing the transparency of regenerated cellulose or cellulose derivative foils to short wave radiation such as ultraviolet light.

TTD:11-46.

TYLOSE CELLULOSE DERIVATIVES: KALLA & Co. A. G. WIESBADEN-BIEBRICH. Brit. Intelligence Objectives Subcommittee Report 547, price 2s 1d.

Listed in *Govt. Publications (Great Britain)* (July, 1946). TTD:11-46.

Synthetic resins V 1 c

CALENDERING AND COATING with polyvinyl resins. Anon. *Rayon Textile Monthly 27,* 543-4 (Oct. 1946).

Directions are given for the application of Geon to fabrics.

HAM TTD:11-46.

COATINGS. Improved coating techniques produce better art leather. Selma Wineman & Haviland F. Reves. *Textile World 96,* No. 7, 114-15 (July, 1946).

Vinyl resin coatings are finding increased use, especially for automobile upholstery. Application techniques are illustrated. TTD:11-46.

MELAMINE RESINS. Know your melamines. Anon. *Plastics 5,* No. 1, 44, 46-7, 76-7 (July, 1946).

The properties of these thermosetting resins that particularly recommend them (water resistance, chemical inertness, and hardness) are briefly discussed.

TTD:11-46.

SILICONE RESINS, their nature and production. Anon. *Silk & Rayon 20,* 977-9, 1002 (Aug. 1946).

The possible uses of silicone resins in the manufacture of textile fibers and finishing agents are generally surveyed. TTD:11-46.

FABRIC COATING. B. J. Balfe (to Imperial Chemical Industries, Ltd.). Brit. P. 575 477. *Textile Mfr. 72,* 386 (July, 1946).

A flexible solvent-resistant coating or binder for fabrics is composed of a polyvinyl acetal resin and a polyvinyl alcohol ester. TTD:11-46.

COPOLYMERS. N. V. de Bataafsche Petroleum Mij. Swiss P. 241 660 & 241 661, Oct. 26, 1943.

A process for making useful polymers by emulsion copolymerization of vinyl and vinylidene compounds.

TTD:11-46.

MATERIAUX DE SYNTHESE. RESINES VINYLIQUES, Henri Gibello; 222 pp.; price F. 280. PRODUITS RESINEUX: GEMMES, COLOPHANES ET DERIVES, René Lombard; 316 pp.; price F. 385. AMINOPLASTES, Pierre Talet; 236 pp.; price F. 280. Librairie Dunod, Paris, 1946.

Cited in *Nature 158,* Suppl. ii (Sept. 28, 1946).

TTD:11-46.

Elastomers V 2

SYNTHETIC RUBBERS. Composition of butadiene-styrene copolymers prepared by emulsion polymerization. E. J. Meehan, Univ. of Minn. *J. Polymer Sci. 1,* 318-28 (Aug. 1946).

The relative rates of addition of butadiene and styrene to the growing end of a polymer chain are discussed. From experiments described it is concluded that the composition of the copolymers is unaffected by variations in the amount of emulsifier and of mercaptan and by the nature of the water-soluble polymerization catalyst.

LWR TTD:11-46.

Adhesives — V 3

ADHESIVES. W. H. Scholten's Chemische Fabrieken N. V. Swiss P. 240 997, Mar. 16, 1942.

A process for making dry products which form dispersions in cold water and on drying on a surface yield water-insoluble films, the raw material being hydroxylated colloids, especially carbohydrates. TTD:11-46.

STARCH. W. A. Scholten's Chemische Fabrieken N. V. Swiss P. 240 998, Mar. 16, 1942.

A process for making starch products which are soluble in cold water. TTD:11-46.

Surface-active compounds — V 4

TEXTILE AUXILIARY PRODUCTS: DEVELOPMENT OF MERSOL AND HOSTAPON PROCESSES BY I. G. FARBENINDUSTRIE, HOCHST. Brit. Intelligence Objectives Subcommittee Report No. 478; price 5s 8d.

Listed in *Govt. Publications* (*Great Britain*) (July, 1946). TTD:11-46.

TEXTILE AUXILIARY PRODUCTS OF I. G. FARBENINDUSTRIE: APPLICATION, TESTING, AND MISCELLANEOUS INFORMATION. Brit. Intelligence Objectives Subcommittee Report No. 518; price 7s 3d.

Listed in *Govt. Publications* (*Great Britain*) (July, 1946). TTD:11-46.

CHEMICAL PROCESSING — VI

CORROSION. Some case histories of corrosion problems in chemical process equipment. W. Z. Friend & F. L. LaQue, International Nickel Co., Inc. *Trans. Am. Inst. Chem. Engs. 42,* 849-62 (Oct.-Dec., 1946).

Seven case histories of unusual corrosion problems are discussed with their causes. Investigation of 1 dyeing problem showed no corrosion but did show a need for aeration of the dye-bath when dyeing silk.
LCL TTD:11-46.

FINISHING OVERCOATING CLOTHS. Women's woolen overcoating cloths. Anon. *Dyer 96,* 110-12 (Aug. 2, 1946).

Scouring, milling, and dry finishing treatments (of bouclés and crepes particularly) are briefly surveyed. Showerproofing of overcoating cloths with wax emulsion solutions (usually with a 2% dispersion) is discussed. TTD:11-46.

RAYON PROCESS CHEMICALS. Recovery and utilization of process chemicals in viscose rayon industry. Paul W. Frisk. *Rayon Textile Monthly 27,* 461-3 (Sept. 1946).

Recovery of process chemicals are necessary in the interest of efficiency and economy. The recovery of 4 major chemicals is discussed: NaOH, spinning bath salts and acids, CS_2, and H_2S. TTD:11-46.

TEXTILE PROCESSING. Random review of textile processing. T. V. Punnoose. *Indian Textile J. 56,* 928-9 (July, 1946).

The Sulzer loom, soybean size, and non-woven cloth are among the topics briefly considered. TTD:11-46.

Scouring — VI 1 a

SCOURING. Commercial scouring and carbonizing in Australia. Wm. Smith, Woolscourers, Carbonizers and Fellmongers' Assn. of Victoria. *Textile J. Australia 21,* 379-81 (Aug. 1946).

A brief general survey. TTD:11-46.

SCOURING LIGHT SHADES EFFICIENTLY. Anon. *Wool Record & Textile World 70,* 411, 413 (Aug. 22, 1946).

Some common problems encountered in scouring and their practical solution are discussed briefly. TTD:11-46.

Drying — VI 1 c

COTTON GOODS FINISHING methods and machines. Anon. *Am. Wool Cotton Reptr. 60,* No. 32, 15-16, 63-5 (Aug. 8, 1946).

In a discussion of fabric drying, the operation of a 2-side cylinder plant is reviewed in some detail, the process being described as probably the most expensive one in finishing. In the evaporation of water from cotton cloth it is noted that a temperature difference of 27°F at the completion of evaporation is the most efficient gradient, e. g. when the cloth is at 212°F the cylinder is 239°F. TTD:11-46.

DRYING. Progress in drying and curing resin-treated textile fabrics. Marcel J. Pagerie, Allied Textile Printers, Inc. *Rayon Textile Monthly 27,* 477-8 (Sept. 1946).

The desirability of installing special equipment for impregnating, drying, and curing resin-treated textiles is stressed.
HAM TTD:11-46.

DRYING FABRICS. Buffalo Electro-Chemical Co., Inc. Brit. P. 576 030. *Textile Mfr. 72,* 443 (Aug. 1946).

Fabrics in rope form, impregnated with 50-200% of dry weight by a treating solution, are dried in a heating chamber at atmospheric pressure. TTD:11-46.

DRYING. Otto Gümbel & Oskar Poetzsch. Swiss P. 241 630, Oct. 17, 1941.

Apparatus for treating, and especially for drying, wound packages of yarn or fabric. TTD:11-46.

DRYING. Gesellschaft zur Förderung der Forschung auf dem Gebiete der technischen Physik an der Eidgenössischen Technischen Hochschule, Zurich. Swiss P. 243 080, Feb. 3, 1945.

Improved apparatus for drying textile fabrics. TTD:11-46.

Alkali baths **VI 5**

CREPING NYLON-CELLULOSE FABRIC. G. Loasby & D. L. C. Jackson (to Brit. Nylon Spinners, Ltd.). Brit. P. 576 050. *Textile Mfr. 72,* 443 (Aug. 1946).

A crêpe effect is produced on nylon-cellulose fabrics by treatment with a reagent such as NaOH (10-20% concentration) at 20°C, which shrinks the cotton yarn without affecting the nylon appreciably. TTD:11-46.

Sizing **VI 6**

STARCH. Radbout L. Beukenkamp. Swiss P. 241 634, Nov. 8, 1944.

A process for making a starch size or stiffening agent, especially for use on laundered fabrics. TTD:11-46.

Finishing **VI 7**

COTTON GOODS FINISHING methods and machines. Anon. *Am. Wool Cotton Reptr. 60,* No. 24, 9-10, 45, 47, No. 28, 15, 19, 21, 64 (June 13, July 11, 1946).

A survey reveals the continuing use of many old methods and much old equipment: thus, in mangling, it is noted that the application of pressure by hand is not to be compared with the new hydraulic or pneumatic methods, by which up to 7 tons pressure may be exerted. Proposed methods for shortening boiling and bleaching by a continuous bleaching process are considered and a horizontal tunnel kier having automatic controls is discussed. A feature of a new bleach system is a heating unit to replace kier boiling and the alkaline treatment. TTD:11-46.

EQUIPMENT IMPROVEMENTS for dyeing and finishing. Anon. *Am. Wool Cotton Reptr. 60,* No. 32, 55-8 (Aug. 8, 1946).

Recent advances, particularly in continuous bleaching and vat dyeing ranges, are briefly reviewed. A straight automatic tenter (H. W. Butterworth Sons Co.), an enclosed stainless steel piece dye kettle (Jas. Hunter Machine Co.), a stock dye kettle (Riggs & Lombard, Inc.), and a new controller for temperature, pressure, flow, etc. (Foxboro Co.) are described and illustrated. TTD:11-46.

FABRIC STAINS and their removal. Alex J. Bennett. *Indian Textile J. 56,* 921-2 (July, 1946).

Stains are a major source of trouble in finishing. Stains from blood, tea, coffee, various foods, resin, oil, dye, ink, wood, tar, pitch, mildew, and metal are briefly discussed and methods of removal suggested. TTD:11-46.

REODORANTS AND DEODORANTS used in textiles. R. E. Horsey, Givaudan-Delawanna, Inc. *Cotton* (Atlanta) *110,* No. 7, 172, 175 (July, 1946).

The application of pleasant odors to fabrics, best accomplished during the finishing operation, is briefly discussed. TTD:11-46.

TEXTILE FINISHES. Some notes on cellulose solvents and their application to special textile finishes. C. L. Mantell, United Merchants Laboratories, Inc. *Textile Research J. 16,* 481-6 (Oct. 1946).

Cellulose solvents of the zincate-urea and stannate-urea type (for use in the treatment of textile yarns, threads, and fabrics) are discussed from the point of view of finishing.

LWR TTD:11-46.

TEXTILE FINISHING. Influence of advances in other industries on textile printing and finishing. R. H. Hannay. *J. Soc. Dyers Colourists 62,* 173-5 (June, 1946); *Am. Dyestuff Reptr. 35,* 352-4 (July 15, 1946).

A general survey. TTD:11-46.

WOOLEN CASHMERE SUITING finishing suggestions. Anon. *Am. Wool Cotton Reptr. 60,* No. 35, 11-12 (Aug. 29, 1946).

Handling of the fine fabrics of this type should be entrusted to experienced burlers and sewers. Fulling should be at low speed and temperature. Suggestions for napping, drying, and shearing are given. TTD:11-46.

WOOLEN FINISHING METHODS for improved fabrics. Anon. *Am. Wool Cotton Reptr. 60,* No. 32, 17-18, 65-7 (Aug. 8, 1946).

The 4 main operations in finishing woolens or worsteds are briefly reviewed: fulling, scouring, napping, and shearing. Careful control of heat and keeping the alkali content of soap as low as possible are important factors in fulling. The causes of holes, wrinkles, and bleeding are discussed and practical remedies suggested. TTD:11-46.

RESIN FINISH. R. Hofmann (to Texis S. A. Textile). Swed. P. 116 394, Mar. 15, 1943.

Properties of fibrous materials are improved by impregnation with a solution of a urea-formaldehyde resin or the like, and with a solution or dispersion of unsaturated fatty acids. After treatment the fabric is dried by heat and treated with a halogen. TTD:11-46.

FINISHING. Heberlein & Co. Swiss P. 243 583, May 4, 1944.

A stable textile processing bath and a method for making it. TTD:11-46.

COLOR **VII**

BLEACHING AND DYEING. How and why around a print works. C. B. Peake, Dominion Textile Co., Ltd. *Can. Textile J. 63,* No. 14, 40-2, No. 16, 40-1 (July 12, Aug. 9, 1946).

The operation and procedures in a textile dyeing,

printing and finishing plant are briefly described and include the preparation of gray goods, the handling of white goods, selection of dyes, and bleaching technique. Color mixing, aging, folding, and inspecting are also discussed. TTD:11-46.

BLEACHING AND DYEING JUTE. New method of approach to bleaching and subsequent dyeing of jute. C. Garrett. *J. Soc. Dyers Colourists 62,* 234-7 (Aug. 1946).

The preliminary benzine extraction method greatly improves the subsequent bleaching and dyeing of jute. Level bleaching (by sodium hypochlorite) is most easily ensured by washing and drying the fabric between 2 bleaching treatments. The dyeing of jute and jute-cotton unions, having the best all-around fastness, is obtained with indigosol dyes. TTD:11-46.

DYEING, BLEACHING AND MERCERIZING. Scientific outlook on dyeing, bleaching and mercerizing practice. P. M. Joshi. *Indian Textile J. 56,* 824-31 (June, 1946).

Current practices are reviewed. TTD:11-46.

1945 BIBLIOGRAPHY OF COLOR. I. H. Godlove, General Aniline & Film Corp. *Am. Dyestuff Reptr. 35,* 408-12, 417 (Aug. 26, 1946).

A comprehensive bibliography includes references on light sources, color perception, terminology, fastness test, measurement, color psychology, applications, and color in war (camouflage, etc.). TTD:11-46.

Bleaching — VII 1

BLEACHING with hydrogen peroxide. Anon. *Textile Weekly 38,* 218, 220 (Aug. 2, 1946).

The use of stabilizer C (B. Laporte, Ltd.) in H_2O_2 bleaching is discussed and 5 of its merits itemized. TTD:11-46.

BLEACHING TEXTILES WITH PEROXIDES. Russell Mills, E. I. duPont de Nemours & Co. *Am. Dyestuff Reptr. 35,* 388-9, 393 (Aug. 12, 1946).

Bleaching of wool and cotton goods is briefly surveyed. The bleaching of cotton knit goods in tubular form, as is largely practiced in the Midwest, is commented upon, the kier method being preferred over the slack washer or open tub. The advantages of the new continuous bleaching process for cotton piece goods are briefly considered, 2 variations of the process being noted (bleaching in rope form and in open width). TTD:11-46.

TREATING WOOL. J. B. Speakman & C. S. Whewell (to Tootal Broadhurst Lee, Ltd.). Swed. P. 116 704, Apr. 29, 1942.

Fabrics containing animal fibers are treated with aqueous hypochlorite baths to lessen the felting tendency, by immersing not more than 30 seconds in a solution containing 0.5 to 1.5% available Cl and then quickly removing the excess solution so that each animal fiber is superficially treated without penetration and damage to the goods. TTD:11-46.

Dyeing — VII 2

ANILINE BLACK DYEING. Technicus. *Textile Weekly 37,* 1120, 1122, *38,* 30, 32, 34, 36, 172, 174, 176 (June 7, July 5, 26, 1946).

Tendering during oxidation is discussed and some remedies suggested. A formula for a printing paste with prussiate black is given and its processing discussed. Problems of aging are considered. TTD:11-46.

AUTO FABRIC DYEING brings new problems and methods. Anon. *Am. Wool Cotton Reptr. 60,* No. 32, 27, 29, 68 (Aug. 8, 1946).

Careful preparation and fulling of cloth preparatory to dyeing are required in fabrics for the automobile industry. Suggestions for achieving even dyeing with mixed fibers are given. The use of vat dyes is anticipated in order to meet the requirements of fastness to light and crocking. TTD:11-46.

DYEING mohair and rayon mixture cloths. Kemmek. *Textile Recorder 64,* No. 761, 52 (Aug. 1946).

The choice of suitable neutral wool colors and direct cotton colors and some of the dyeing difficulties encountered are briefly considered. TTD:11-46.

DYEING. Critical review of dyeing processes. Gösta Silen. *Textil och Konfektion 3,* 358-60 (Oct. 1946).

As a new concept in dyeing, dyes are classified as those having affinity independent of temperature and those having affinity which varies with temperature and generally decreases toward the boiling point of the dye bath. For many dyes the makers recommend placing goods in the dye bath at 40°C and heating to boiling in about 30 min. For the first group of dyes this principle is acceptable, but much better dyeings are often obtained by starting at 65°C and heating to boiling in about 50 min. For the second group of dyes this procedure is not at all acceptable, since maximum affinity occurs well below the boiling point and often in the neighborhood of 60°C. The best dyeings are obtained by heating the bath at such a rate that the time: concentration curve is linear, and not raising the temperature above that of maximum affinity. This study was originally based on dyeing wool with acid dyes having good leveling properties, but has also been extended to dyeing cellulosic fibers with indirect dyes. TTD:11-46.

DYEING COTTON HANKS with sulfur colors. Anon. *Dyer 96,* 19-20, 67-9 (July 5, 19, 1946).

The operation of the Rhodes dyeing machine is discussed in some detail, particularly with reference to the problems of securing level dyeing and of avoiding

bronzing. As an aid in leveling it is suggested that in packing the load, in order to prevent formation of liquid channels when circulation begins, that a quantity of loose cotton stock, or else glass wool, be placed on the perforated floor of the vessel before laying in the hanks. TTD:11-46.

DYEING HESSIAN FABRIC. A. Ellis. *Textile Weekly 38,* 222, 224, 270, 272 (Aug. 2, 9, 1946).

The application of acid and sulfur dyes to Hessian, particularly in a jigger, is generally discussed. TTD:11-46.

DYEING RAYONS. Development of vat and sulfur dyeings. Anon. *Silk & Rayon 20,* 985 (Aug. 1946).

The use of $NaClO_2$ as an oxidant in developing dyes is briefly considered. TTD:11-46.

DYER'S NOTES. Anon. *Dyer 96,* 84-5, 87 (July 19, 1946).

The use of scaffolding, or disappearing, threads (e. g. acetate rayon which is dissolved with acetone) in the manufacture of lace and net materials is briefly reviewed. The newer fibers having this disappearing property (such as the alginate fibers, or seaweed rayon) are mentioned. TTD:11-46.

HANK DYEING. Pulsator hank dyeing machine. Anon. *Textile Recorder 64,* No. 761, 41-2 (Aug. 1946).

A new dyeing machine (Sam'l. Pegg & Son) embodies the following important advantages: single direction intermittent flow of liquor, increased capacity (liquor to yarn ratio approximately 10-1), heavy-gage, stainless steel vat with unobstructed dyeing chamber, hank poles (to eliminate damaged yarn), and automatic control. Capacity ranges from 10-1200 lb. per batch. It operates on a. c. current only. TTD:11-46.

NEW DYEING DEVELOPMENTS patents and products. Anon. *Am. Wool Cotton Reptr. 60,* No. 32, 51-2 (Aug. 8, 1946).

Some recent advances are briefly reviewed. TTD:11-46.

NYLON DYEING. Two nylon dyeing methods analyzed and evaluated. Anon. *Am. Wool Cotton Reptr. 60,* No. 32, 31, 33 (Aug. 8, 1946).

The pad steam continuous dyeing process is outlined and is suggested for overcoming the undesirable properties of acid and direct colors on nylon. TTD:11-46.

NYLON DYES. Supernylite-fast dyes for nylon. Anon. *Rayon Textile Monthly 27,* 514 (Sept. 1946).

Supernylite colors (Althouse Chemical Co.), having superior fastness properties to conventional acetate dyes on nylon, easier to apply than chrome colors, and requiring no developing, are applicable to nylon staple fiber, yarn, or pieces. TTD:11-46.

PACKAGE DYEING IN GERMANY. Thos. R. Smith, OQMG. *Am. Dyestuff Reptr. 35,* 413-17 (Aug. 26, 1946).

A report of an investigation made in Germany notes that in general machinery for dyeing packages, cheeses, and beams, has not advanced so far in Germany as in the United States except for rayon cakes dyed in a new machine developed by Diem and Obermaier & Co. The more advanced development in package dyeing in the U. S. is considered to be due to use of stainless steel (instead of cast iron as in Germany) in machinery fabrication. Some representative dyeing formulas are given. TTD:11-46.

PROPERTIES OF VAT DYES. Some general dyeing properties of vat dyestuffs. Anon. E. Marney. *Dyer 96,* 157, 159, 205-7 (Aug. 16, 30, 1946).

Some practical dyeing problems are considered, particularly with reference to applying laboratory findings to bulk working conditions. To estimate strengths of vat dye solutions construction of a graph is described which plots time of dyeing against percentage of dye absorbed. A dip test for checking the results from rate-of-dyeing graphs, and a strike test, for assessing redistributive properties, are discussed. TTD:11-46.

SOLUBLE VAT DYES. Anon. *Dyer 96,* 107-10, 160-2, 180 (Aug. 2, 16, 1946).

The history of the Indigosols of the past 25 years, particularly with reference to the work of Baeyer and Bader, is reviewed. Manufacturing developments of more recent years are discussed and include methods of application and differences in solubility. TTD:11-46.

SYNTHETIC DYES. K. Venkataraman, Univ. of Bombay. *Indian Textile J. 56,* 833-7 (June, 1946). (Reprinted from *J. Sci. Ind. Research*).

Recent developments are reviewed. TTD:11-46.

YARN DYEING. Processing procedures for modern yarn dyeing. Robt. W. Joerger, Franklin Process Co. *Cotton* (Atlanta) *110,* No. 7, 82, 84, 86, 88, 160 (July, 1946).

Modern trends in dyeing are briefly reviewed. Peroxide bleaching, popular because of combining the boil-off and bleaching operation, is briefly discussed. Direct cotton colors, including various types of after-treatment, are considered in some detail. TTD:11-46.

Printing VII 3

PRINTING. Preparation lowers loss in fabric printing. T. N. Patrick. *Textile World 96,* No. 7, 145, 147, 212, 214, 218 (July, 1946).

Care and attention to sewing, mangling, calendering, tentering, and batching operations are particularly important in securing good registration and clear, undistorted patterns after finishing. TTD:11-46.

PRINTWORKS AFTERTREATMENTS. J. H. Downey. *Textile Age 10,* No. 8, 64, 66, 70 (Aug. 1946).

The processing carried out in the wet state after aging the prints to fix the dyes is considered under 4 heads: developing, rinsing, desizing, and soaping.

TTD:11-46.

VAT PRINTING. R. C. Geering, Ciba Co., Inc. *Rayon Textile Monthly 27,* 553-7 (Oct. 1946).

A description of the fundamental processes used in vat dye printing and the materials used.

HAM TTD:11-46.

STEAMING. R. Hoffmann. Swed. P. 116 503, June 16, 1944.

In apparatus for steaming printed fabrics the width of the slit through which the fabric passes is controlled by movable wings mounted on a spring so that seams or knots are allowed to pass even though they are thicker than the normal slit width. TTD:11-46.

Color measurement VII 4

CELLULOSE—DYESTUFF COMPLEX. II—Intensity of light reflected from dyed fibers. J. M. Preston & P. C. Tsien. *J. Soc. Dyers Colourists 62,* 242-8 (Aug. 1946).

An explicit relation between reflected light intensities and dye concentrations is derived from a composed model for calculating the light reflected from dyed fibers and is in reasonable agreement with experimental measurements on the dyed fibers. TTD:11-46.

COLOR AND CONSTITUTION. VIII—Some color problems from the viewpoint of resonance theory. H. H. Hodgson. *J. Soc. Dyers Colourists 62,* 237-40 (Aug. 1946).

Armstrong's quinonoid and triple color-center hypotheses (with iodoform as the reference substance) are considered in the light of modern resonance theory. His theory does not explain the colors or the aliphatic nitroso-compounds. TTD:11-46.

COLOR DIFFERENTIATION. How many colors are there for the textile man? Waldemar Schweisheimer. *Indian Textile J. 56,* 822-3 (June, 1946).

The vast number of color shades (2,000,000) distinguishable by the human eye is discussed. TTD:11-46.

COLOR MATCHING. Idiosyncrasies in color matching. Danl. P. Knowland, Geigy Co., Inc. *Rayon Textile Monthly 27,* 498-500 (Sept. 1946).

Hue, value, and chroma (respectively the name, lightness and strength of colors) are differentiated and discussed with respect to the way the eye views these 3 dimensions. TTD:11-46.

COLOR MEASUREMENTS of standards for grades of cotton. Dorothy Nickerson, USDA Production & Marketing Administration. *Textile Research J. 16,* 441-9 (Sept. 1946).

Measurements shown in a series of diagrams illustrate the relation of the grades to one another in color and how the color may change during a period of years. Also illustrated are color measurements of the original standards and of the standards to become effective Aug. 1, 1947.

LWR TTD:11-46.

COLORIMETRY OF FLUORESCENT SAMPLES. I. H. Godlove, General Aniline & Film Corp. *Am. Dyestuff Reptr. 35,* 390-3 (Aug. 12, 1946).

The importance of separating strongly fluorescent samples from other samples, emphasized by the results of the National Bureau of Standards' work on the TCCA Standard Color Cards is briefly discussed. It is pointed out that while of the more than 1400 dyes listed in the color index of the Society of Dyers & Colorists (British) about 85 are characterized as fluorescent, over half of the 238 TCCA Standards are fluorescent, 55 being strongly so. TTD:11-46.

COLORIMETRY OF TEXTILES. E. I. Stearns, Am. Cyanamid Co. *Am. Dyestuff Reptr. 35* 330-1 (July 1, 1946).

In a discussion on standardizing angular conditions of view it is recognized that there is no widely accepted method. Color matching, in general, contemplates viewing a sample under a great many conditions. The National Bureau of Standards' method of measuring TCCA samples is discussed. TTD:11-46.

DICHROISM. J. W. Illingworth. *Textile Recorder 63,* No. 757, 50-1 (Apr. 1946).

Dichroism, the preferential absorption of light, is shown by many dyed fibers, particularly the cellulosic. Estimates of molecular orientation of the fiber from measurements of the dichroic effect, are found to be in fairly close agreement with those obtained by x-ray diffraction diagrams. TTD:11-46.

DICHROISM OF FIBERS. Silver dichroism of micellar systems with fibrous structures. A. Frey-Wyssling & O. Wälchli, Eidgenossische Technische Hochschule. *J. Polymer Sci. 1,* 266-74 (Aug. 1946).

By embedding submicroscopic silver rodlets in micellar systems with fibrous structures, unexpectedly strong anisotropic rodlet compound bodies are formed.

LWR TTD:11-46.

MEASURED STANDARDS. John F. Warner, Riegel Textile Corp. *Am. Dyestuff Reptr. 35,* 332-3 (July 1, 1946).

The benefits to be derived by industry by recent researches in color measurement standards are briefly discussed. TTD:11-46.

PROOFING VIII

Waterproofing VIII 1

WATER REPELLENCY STANDARDS. Minimum standards program. Al Cornhall, Cornhall & Co., Inc. *Textile Colorist 68,* No. 9, 14-15 (Sept. 1946).

Two types of water-repellent finishes are distinguished in labeling garments: renewable and durable. TTD:11-46.

WATER REPELLENTS for military textiles. Henry N. Mitchell. *Textile Colorist 68,* No. 9, 16-17 (Sept. 1946).

It is pointed out in a general review that no new types of water repellents for use on the general classes of textiles (with the exception of the olive drab preparation for treating cotton duck) were developed during the war. TTD:11-46.

WATERPROOF FIBER. Seeks wholly waterproof fiber. Anon. *Textile World 96,* No. 7, 139 (July, 1946).

A fiber superior to nylon, in which sensitivity to water has been eliminated, is noted as now in the test-tube stage. TTD:11-46.

WATERPROOF YARN. Aluminum . . . new waterproof yarn. Anon. *Textile Colorist 68,* No. 9, 20, 54 (Sept. 1946).

An aluminum yarn (Dobeckmun Co.) that will not tarnish and is waterproof is described briefly. TTD:11-46.

WATERPROOFING FABRICS. British Thomson-Houston Co., Ltd. Brit. P. 575 675, 575 696. *Textile Mfr. 72,* 387 (July, 1946).

Fabrics may be waterproofed by treating with a composition containing a mixture of trimethyl silicon chloride and $SiCl_4$ (in a ratio of from 2.8-99.2 to 97.2-0.8 wt.%) or by treatment with an organo-scilicon halide and then with an alkaline reagent (e. g. NH_3) to remove any free acid. TTD:11-46.

WATER REPELLENCY. J. G. Evans & C. E. Salkeld (to Imperial Chemical Industries, Ltd.). Swed. P. 116 627, Nov. 2, 1937.

Wool, silk, protein fibers and the like are rendered water-repellent by impregnation with a quaternary ammonium compound, followed by baking to decompose the quaternary ammonium salt, which contains an aliphatic radical of at least 12 C atoms linked to C by O or S, and an aliphatic radical of at least 11 C atoms linked to N. TTD:11-46.

WATERPROOFING. Wm. J. S. Peschardt. Swiss P. 241 659, Nov. 26, 1943.

A process for making soft gelatinous substances which are impermeable to gases and to water; and products made by this process. TTD:11-46.

Insectproofing VIII 2

INSECTPROOFING. DDT and its textile applications. F. L. Goodall, T. F. Gorton & J. V. Summersgill. *J. Soc. Dyers Colourists 62,* 189-98 (July, 1946).

The application of DDT to textile materials as an insecticidal finish is studied. Means of application (from solvents, from aqueous media, and by dusting), stability, fastness properties, and toxicity are factors considered. TTD:11-46.

Flameproofing VIII 4

FLAMMABLE CLOTHING. Safeguarding hazards of flammable clothing. Chas. W. Dorn, J. C. Penney Co. *Nat'l. Fire Protection Assn. Quarterly 40,* 78-83 (Oct. 1946).

The relative flammability of the more common types of fabrics is considered, particularly with reference to a study of AATCC that attempted to distinguish between ordinary and hazardous fabric. It was concluded that wool, silk, and nylon offer no flammability hazard and that cotton is as flammable as regenerated type rayon, also that certain coated fabrics, although generally slow to ignite, burned with a violent flame that is difficult to extinguish. A flammability tester developed is described and illustrated. TTD:11-46.

FLAMEPROOFING ACETATE FABRICS. Brit. Celanese, Ltd. Brit. P. 575 903. *Textile Mfr. 72,* 388 (July, 1946).

Cellulose acetate fabrics are made fire-resistant by impregnation with a urea ammonium-salt solution. Example of an impregnant: diammonium methyl phosphate 20, ammonium bromide 10, and urea 15 wt.%. TTD:11-46.

FLAMEPROOFING OF TEXTILES. Anon. Nat'l. Bur. Standards Pamphlet LC-818; 1946; 24 pp. TTD:11-46.

Shrinkproofing VIII 6

SHRINKPROOF RAYON. Fully shrunk spun rayon fabrics. E. Kornreich. *Textile Mfr. 72,* 374-5 (July, 1946).

Some of the characteristics of spun rayon, particularly that of shrinking freely during wet treatments, are discussed. Knowledge of shrinkage factors is particularly important in determining subsequent dyeing and finishing processes. TTD:11-46.

WET CHLORINATION OF WOOL requires accurate controls. Anon. *Am. Wool Cotton Reptr. 60,* No. 32, 19, 21, 23, 25, 67-8 (Aug. 8, 1946); *Knitter 10,* No. 8, 21-2, 25, 60 (Aug. 1946) *Fibre & Fabric 99,* No. 3207, 3, No. 3209, 6-8 (July 20, Aug. 3, 1946); *Rayon Textile Monthly 27,*

479-82 (Sept. 1946); *Textile Bull. 70,* No. 12, 47-8 (Aug. 15, 1946).

A lecture by W. A. Edwards (Wm. Lacey, Ltd., Inc. & Godkin & Edwards, Ltd.) is summarized, consisting essentially of a description of the Negafel process of wet chlorination, patented by Edwards & Ellis Clayton. This process is particularly applicable to wool hosiery and other knit goods. TTD:11-46.

Stabilizing **VIII 7**

STABILIZING RAYONS. Brit. P. 575 260. *Textile Mfr. 72,* 386 (July, 1946).

The solvent resistance of cellulose acetate and the resilience of viscose rayons are improved by treatment with a monocyclic urea, having on each cyclic urea N atom a methylol ether group, and then reacting with a hydroxylated polymer. TTD:11-46.

STABILIZED ALGINATE YARN. P. L. D. Peill & N. H. Chamberlain (to Cefoil, Ltd.). Brit. P. 575 611. *Textile Mfr. 72,* 387 (July, 1946).

Alginic fibers and films are rendered alkali-resistant by resin impregnation and polymerization. In an example alginic acid yarn is immersed 1 min. in a urea-formaldehyde solution and air-dried at 100°C for 90 min. to polymerize the urea and formaldehyde. TTD:11-46.

CRIMPING. E. Weiss, K. Risch & T. Odinga (to Heberlein & Co.). Swed. P. 116 987, Aug. 15, 1944.

Imparting permanent crimp and high resistance to swelling to a fabric composed of smooth fibers, by imparting a high twist to the yarn and applying a known antiswelling treatment. TTD:11-46.

TESTING AND ANALYSIS IX

MODERN TESTING LABORATORY. Walter S. Sondhelm. *Textile Recorder 64,* No. 760, 48-50, No. 761, 43-5 (July, Aug. 1946).

Sliver and yarn testing equipment needed for an adequate laboratory is itemized and discussed. TTD:11-46.

PRECISION IN LAB. John H. Williams. *Textile Forum 3,* No. 1, 8-9, 20-1 (Feb. 1946).

The importance of relative humidity, because of its effect upon testing conditions, is stressed in a general discussion of laboratory procedures. TTD:11-46.

Physical properties **IX 1**

COMPTES RENDUS DES LABORATOIRES DU COMITE D'ORGANISATION DE L'INDUSTRIE TEXTILE. III. ESSAIS ET RECHERCHES (REPORTS OF THE TEXTILE INDUSTRY ORGANIZATION COMMITTEE. III. TESTS AND RESEARCH). Editions de l'Industrie Textile, Paris, 1946; 250 pp.

Reviewed in *Textil och Konfektion 3,* 361 (Oct. 1946). TTD:11-46.

MICROSCOPY. Manipulation and use of the microscope in textile laboratories. L. van Iseghen. *Textielwezen 2,* 33-4, 465-7, 555-7 (Jan., Sept., Oct. 1946).

Polarization microscopes offer a number of opportunities for clarifying certain questions about fibers. Ordinary microscopes can be used in polarized light by attaching a polarizer and an analyzer. Hence the polarization microscope, though helpful, is not indispensable. Birefringence of fibers can be utilized by preparing specimens in mediums with appropriately selected indexes of refraction. The two refractive indexes of various fibers with respect to polarized light are tabulated for cotton, flax, hemp, sisal, silk, wool, chlorinated wool and rayons. Refractive indexes of 32 liquid mediums are also tabulated, ranging from CH_2I_2 at 1.740 to water at 1.330. TTD:11-46.

WHY USE MICROSCOPY? Horace Penn & E. N. Corby. *Textile Forum 3,* No. 2, 9, 24-6 (May, 1946).

The functions of microscopy in the textile industry are outlined and discussed under 4 heads: (1) identification, (2) measurement, (3) study of surface structure, and (4) study of effects of physical and chemical treatments on the fiber. TTD:11-46.

Fiber testing **IX 1 a**

ENTROPY EFFECT. Contribution of entropy to elastic properties of keratin, myosin and some other high polymers. H. J. Woods, Leeds Univ. *J. Colloid Sci. 1,* 407-19 (Oct. 1946).

The elastic properties of keratin, myosin, casein, and nylon are considered in relation to thermodynamics. The entropy effect is held to be equitable to these materials as well as to rubber.
LWR TTD:11-46.

FIBER-ARRAY TECHNIQUE—simplified for mills use. Seth Carter. *Textile World 96,* No. 7, 153, 155, 209 (July, 1946).

A short-cut method for testing textile fibers, particularly cotton (a modification of the USDA array and the fibrograph methods), is discussed; it is not an aid to cotton purchasing. A 26% variation in the mean length of cotton classed as 1" is shown, and a need for machine adjustments indicated. TTD:11-46.

FIBER PROPERTIES. Molecular orientation and tensile properties of cotton fibers. R. Meredith. *J. Textile Inst. 37,* T205-18 (Sept. 1946).

Fiber tensile strength and initial Young's modulus have been measured on 36 samples of raw cotton and correlated with the double refraction determined by

the Becke method. About 80% of the variation in strength and modulus can be attributed to variation in the molecular orientation measured by the double refraction. From the higher refractive indexes the corresponding angles of the spiral fibrils were calculated to range from 27° for fine Sea Island cottons to 35° for coarse Indian cottons. The initial Young's modulus is almost inversely proportional to the area of cross-section, i. e. approximately the same load is required to extend fibers of different fineness by the same amount. This is accounted for in terms of the spiral structure of the cotton fiber.
LWR TTD:11-46.

FIBER MICROSCOPY. Technique of electron-microscope investigation of fiber surfaces. Stanley F. Kern, Celanese Corp. of Am. *J. Polymer Sci. 1,* 259-65 (Aug. 1946).

The technique of obtaining polystyrene silica replicas from surfaces and cross-sections of fibers is described, and electron micrographs obtained from replicas of several fibers are shown.
LWR TTD:11-46.

MICROTOME. New British-made microtomes should interest rayon research men. Anon. *Silk & Rayon 20,* 1003 (Aug. 1946).

The Plano microtome (Machine Shop Equipment, Ltd.), a base sledge type, is described and illustrated. TTD:11-46.

STRESS-STRAIN DATA. Methods for measuring stress and strain in solids. W. A. P. Fisher. *Nature 158,* 537-9 (Oct. 19, 1946).

A symposium of the Institute of Physics (Manchester, England) on strain gages is summarized. A new type of electric strain gage in which the wires are interwoven with rayon gives remarkably consistent performance. Strains in metals, plastics and other substances can be accurately measured. Excellent results have been obtained in measuring the strength of glass fibers. TTD:11-46.

FIBER AND SPINNING TEST DATA ON COTTONS INCLUDED IN REGIONAL VARIETY STUDY, CROPS OF 1935, 1936 AND 1937. Anon. Bull. of USDA Production & Marketing Administration, Washington, D. C.; 1946; 36 pp. TTD:11-46.

Yarn testing — IX 1 b

HYSTERESIS and method for its measurement in rubber-like materials—II. J. H. Dillon, Firestone Tire & Rubber Co., & S. D. Gehman, Goodyear Tire & Rubber Co. *India Rubber World 115,* 217-22 (Nov. 1946).

Flexometers for the study of hysteresis are described and some of the data discussed. Methods of treatment are suggested for studying the dynamic properties of polymers.
LWR TTD:11-46.

RAYON DENIER. Filament thickness and its significance to dyer. Anon. *Dyer 96,* 87, 89, 91 (July 19, 1946).

Shade alterations accompanying changes in filament size of rayon yarns and the dyeing problems presented by the stretching process (resulting in lower dye affinity) are briefly considered. TTD:11-46.

YARN APPEARANCE PHOTOGRAPHIC STANDARDS. J. de La Rama, Jr., N. C. State College School of Textiles. *Textile Bull. 70,* No. 9, 22-3, 44-5 (July 1, 1946).

A practical method of photographing yarn appearance boards (for comparison with appearance standards) is described and illustrated. TTD:11-46.

Fabric testing — IX 1 c

AIR PERMEABILITY OF FABRICS. L. W. Rainard, Inst. of Textile Technology. *Textile Research J. 16,* 473-80 (Oct. 1946).

A method is suggested for deriving some properties of fabrics with respect to air passage at low air velocities. An equation is also presented whereby the rate of air flow through a fabric at any given pressure can be calculated within a limited range. Two constants are described which are held to have greater general utility in defining a fabric with respect to air permeability than the standard ASTM test.
LWR TTD:11-46.

FABRIC STRENGTH not always most important factor. Anon. *Am. Wool Cotton Reptr. 60,* No. 29, 13-14, 54 (July 18, 1946).

In determining the suitability of fabrics for special purposes other factors, besides fabric strength, such as abrasion resistance, flexing capacity, absorbency, etc., should be given consideration. TTD:11-46.

IMPROVED SHRINK TESTS urged during rayon forum. Anon. *Am. Wool Cotton Reptr. 60,* No. 27, 11-12 (July 4, 1946).

General discussion at a meeting is briefly summarized. TTD:11-46.

NOVEL BLENDED FLANNEL of wool and viscose. Anon. *Am. Wool Cotton Reptr. 60,* No. 27, 9-10, 30-1 (July 4, 1946).

Good fiber distribution and early blending of the fibers are desirable in wool-viscose fabrics. Cross dyeing methods are discussed. TTD:11-46.

TRANSMISSION OF HEAT through textile fabrics—II. F. T. Pierce & W. H. Rees. *J. Textile Inst. 37,* T181-204 (Sept. 1946).

The thermal resistance of a fabric is derived essentially from the air immobilized by the fabric when the flow of heat is steady. The resistances of several layers of fabrics, as well as the temperature drops across them, are additive. Thermal transmission through textile fabrics was studied under moving air conditions. Windproof garments are found to be necessary as an outer

layer in order to immobilize the air held by softer inner fabrics.
LWR TTD:11-46.

WEAR RESISTANCE of apparel textiles. I.—Tests of military fabrics on Quartermaster combat course; II—Laboratory evaluation of military fabrics and correlation with combat course tests. Ernest R. Kaswell, Fabric Research Laboratories. *Textile Research J. 16,* 413-31, 502-21 (Sept., Oct. 1946).

A research program, sponsored by the Office of QMG and the National Research Council, and conducted by the Massachusetts Institute of Technology and the Fabric Research Laboratories is described. Results show: (1) the sateen wears out slowest and is therefore best; (2) the herringbone twill wears out 1.8 times faster than the sateen and is next best; (3) the twill wears out 2.1 times faster than the sateen and is worst; and the twill probably wears out slightly faster than the herringbone twill.
LWR TTD:11-46.

TESTING. Heinrich Sulser. Swiss P. 243 874, Nov. 27, 1944.

A manually operated tester for measuring the tensile strength and elongation of textile fabrics, leather, paper and like materials. TTD:11-46.

Chemical analysis — IX 2

HIGH POLYMERS. Use of density-gradient tube in study of high polymers. R. F. Boyer, R. S. Spencer & R. M. Wiley, Dow Chemical Co. *J. Polymer Sci. 1,* 249-58 (Aug. 1946).

The density-gradient tube is described and the application of such a device to 3 typical problems presented.
LWR TTD:11-46.

Biological testing — IX 3

MILDEW RESISTANCE TESTS. Effect of nitrogen on growth of Chaetomium globosum on cotton canvas. Frank R. Romano, Industrial Test Laboratory, Philadelphia Naval Base. *Am. Dyestuff Reptr. 35,* 363-4, 375-6 (July 29, 1946).

In order to improve laboratory mildew resistance tests, the effect of increases of N (as NH_4NO_3) on the growth of *C. globosum* on untreated cotton canvas was studied, and it was found that N seems to be the limiting factor in the growth of *C. globosum* and possibly of many other fungi as well. TTD:11-46.

Specifications — IX 4

RAYON YARN. Post-war situation in rayon yarn deniers and filament numbers. H. R. Mauersberger. *Rayon Textile Monthly 27,* 464-6 (Sept. 1946).

Revised tables of rayon yarns list deniers and filament numbers.
HAM TTD:11-46.

TEXTILE STATISTICS. Approximate function for testing significance of differences according to "Student"-Fisher *t*-test. W. James Lyons, Southern Regional Research Laboratory *Textile Research J. 16,* 438-40 (Sept. 1946).

A statistical method described is held to be useful in textile laboratories.
LWR TTD:11-46.

WASTES — X

TEXTILE WASTES and stream sanitation. R. E. Stiemke, N. C. State Board of Health. *Textile Bull. 70,* No. 10, 25, 63-4 (July 15, 1946).

Increasing public interest in the abatement of stream pollution is noted. The problem is one requiring, and receiving, cooperation between the industries and government control bodies. TTD:11-46.

HAZARDS — XII

ACCIDENT PREVENTION in dyeing and finishing industry. J. B. H. Morton, H. M. Inspector of factories. *J. Soc. Dyers Colourists 62,* 229-34 (Aug. 1946).

The prevention of accidents is aided by consideration of the following factors: appreciation of the kind of problem, analysis of accidents and application of remedies indicated, elimination of potential hazards, promotion of the welfare of workers by attention to heating, ventilation, etc., and making the personnel safety-conscious. TTD:11-46.

ACCIDENTS IN WEAVING. Common sense does reduce accident figures.—IV. W. Middlebrook, Brocklehurst Whiston Amalgamated, Ltd. *Textile Mfr. 72,* 362-3 (July, 1946).

Precautions to be taken against accidents, to feet and fingers particularly, and dangers from flying shuttles, oil spots on the floor, etc., are discussed.
TTD:11-46.

DERMATITIS, caused by improper use of solvents. Anon. *Cotton* (Atlanta) *110,* No. 7, 121 (July, 1946).

Dangers to the skin from improper handling of solvents are briefly noted. TTD:11-46.

HYGIENE OF CLOTHING. Clothing in relation to hygiene. Anon. *Indian Textile J. 56,* 948 (July, 1946).

Body temperature, not atmospheric, is the chief consideration in clothing hygiene. All clothing should be porous; for cold weather it should be of loosely woven fabric sufficiently thick; for hot weather it should be of closely woven thin material. Color is also a factor affecting the warmth of clothing to some extent.
TTD:11-46.

WET TEXTILES in warm and cold weather. Waldemar Schweisheimer. *Indian Textile J. 56,* 923-4 (July, 1946).

The chilling effects of wet fabrics on the human body are briefly discussed. TTD:11-46.

TEXTILE MILLS XIII

MILL MODERNIZATION. Progress in increased production and profits through modernization. Henry Miedendorp. *Rayon Textile Monthly 27,* 501-6 (Sept. 1946).

Factors to be considered in modernization are generally reviewed. TTD:11-46.

MODERN MILL. Heywood Narrow Fabric Co. a versatile concern. Anon. *Fibre & Fabric 99,* No. 3210, 6-8 (Aug. 10, 1946).

This recently modernized mill producing narrow fabrics of all types is briefly described. TTD:11-46.

Mill buildings XIII 1

WOOLEN MILL DYE HOUSE with modern equipment. Anon. *Am. Wool Cotton Reptr. 60,* No. 32, 47, 49-50 (Aug. 8, 1946).

A completely equipped dye house described includes: a dry cleaning machine that reclaims 95% of wool oil, eliminating stream pollution, a carbonizer, stainless steel dye kettles, and air conditioning apparatus. TTD:11-46.

Mill machinery XIII 2

ALLOYS IN MACHINES. Use of light metal alloys in textile industry. Albert Williams, Associated Light Metal Industries. *Textile Recorder 64,* No. 760, 54, 56, 59 (July, 1946).

The lightness, strength, and corrosion resistance of aluminum alloys are properties which merit consideration. Numerous examples where these alloys could replace heavier metals to advantage are cited. TTD:11-46.

MACHINE MAINTENANCE. Thorough machine inspections are basis of good maintenance. Frank L. Byrd, Dan River Mills. *Textile World 96,* No. 7, 108-13 (July, 1946).

An essential feature of systematic maintenance is proper recording: 14 different sample maintenance cards for the various types of machinery are illustrated and briefly discussed. TTD:11-46.

MACHINERY LUBRICATION. Lubrication control on textile machinery. Anon. *Textile Mfr. 72,* 366-7 (July, 1946).

Simplified methods of oiling ring frames and looms are described. TTD:-11-46.

MACHINERY MAINTENANCE. Preventive maintenance program at Dan River Mills. Frank L. Byrd, Dan River Mills. *Cotton* (Atlanta) *110,* No. 5, 65-70, No. 6, 82, 84, 86, 88, No. 7, 77-81, No. 9, 86-7 (May, June, July, Sept. 1946).

In a program of specialized preventive maintenance a system for the proper care of the opening, picking, and carding rooms is first discussed. Numerous points for checking are detailed and report forms suggested. Maintenance problems of spinning and warping are discussed and include ball bearing maintenance, spindle plumbing, belt servicing, and spooler and warper overhauling. In the slashing and weaving departments the duties of specialists on loom fixing particularly are outlined and itemized in some detail. In the dyeing and finishing rooms, as in the opening and picking, and elsewhere, lubrication is emphasized as 1 of the major points in a preventive maintenance program. TTD:11-46.

MILLS CHANGING HANDS. Demand for mills affects quarter of industry. Wm. B. Dall. *Textile World 96,* No. 7, 101-6, 224, 227-8, 230, 232 (July, 1946).

The mergers taking place in the textile industry are surveyed and tabulated: vertical integration has been the objective until recently when horizontal integration has become a factor. More advertising of textiles by brand names is considered likely to result. TTD:11-46.

MODERN MILL PLANNING. Anon. *Textile Weekly 38,* 246, 248, 250 (Aug. 9, 1946). (From *Platt's Bull.,* May-June, 1946.)

Comparative layouts on ordinary and high-draft spinning are summarized. TTD:11-46.

SEWING MACHINE MAINTENANCE. Arthur Miller, Willcox & Gibbs Sewing Machine Co. *Cotton* (Atlanta) *110,* No. 7, 165-6, 168, 170 (July, 1946).

Accurate records are essential to an adequate maintenance program. Sample record cards for parts inventory, repairs, maintenance, and machine organization are shown. TTD:11-46.

SWISS TEXTILE MACHINERY. Anon. *Textile Recorder 64,* No. 760, 45-7, 72 (July, 1946); *Textile Weekly 38,* 120, 122 (July 19, 1946).

Some of the machines shown at the Basle fair are described and illustrated: Uster dropper-pinning machine, Jaeggli 2 x 1 box automatic rayon and silk loom, Hamel doubler-winder and split drum winder, and Sample weaving and warping machines. TTD:11-46.

WEAVING ROOM. Planning construction of your new postwar mill. Jas. Osborne. *Textile Age 10,* No. 8, 76, 78, 80, 82, 84 (Aug. 1946).

The designing of a modern weave room is rendered difficult primarily because of the lack of flexibility in the loom. Two general considerations to be kept in mind, however, are given: (1) the loom design should provide for a back beam with heads as large as

practicable and (2) the size of the bobbin chamber in the shuttle should be decided. TTD:11-46.

HOMMES ET MACHINES DANS L'INDUSTRIE TEXTILE (MEN AND MACHINES IN THE TEXTILE INDUSTRY). Raymond Thiebaut. Editions de l'Industrie Textile, Paris, 1946; 188 pp.

Reviewed in *Textil och Konfektion 3,* 361 (Oct. 1946). TTD:11-46.

Mill power — XIII 3

COAL SAVING by pass-out turbines. Anon. *Textile Weekly 38,* 368 (Aug. 23, 1946).

Pass-out turbines offer great economies (20-30%) to textile mills, where a large proportion of total steam requirements are for low-pressure process work. TTD:11-46.

ELECTRIC MOTORS. Operation of d. c. electric motors. Anon. *Dyer 95,* 561-3, *96,* 24, 43, 45 (June 7, July 5, 1946).

A knowledge of fundamental principles is stressed as essential to understanding the characteristics of various types of electric motors used in industry. The shunt, series, and compound motors are discussed in some detail. TTD:11-46.

ELECTRIC STEAM GENERATION. Anon. *Indian Textile J. 56,* 949 (July, 1946).

The advantages of electric steam boilers are briefly noted: (1) negligible trouble from hard water, (2) high thermal efficiency (98%), and (3) relatively low operating costs, assuming a reasonable price for current (e. g. about 1¢ kwh). TTD:11-46.

ELECTRIFICATION OF COTTON INDUSTRY. Anon. *Textile Weekly 38,* 360, 362, 364, 366 (Aug. 23, 1946).

Increased production and improved working conditions, along with fuel savings, will follow from electrification (according to a survey, summarized, of the British Electrical Development Assn.). TTD:11-46.

NOTES BY DYEHOUSE ENGINEER. Anon. *Dyer 96,* 39, 41 (July 5, 1946).

Wobbling of driving belts is discussed, also the use of colloidal graphite for cylinder lubrication. The steam consumption of boiler feed pumps is briefly considered, it being noted that the lb/hp/hr is very much greater than that of the main engines. The burning of rubbish on boiler fires is deprecated. TTD:11-46.

NOTES BY DYEHOUSE ENGINEER. Anon. *Dyer 96,* 125, 127 (Aug. 2, 1946).

The care of electrical machine frames and shaft couplings is discussed. TTD:11-46.

NOTES BY DYEHOUSE ENGINEER. Anon. *Dyer 96,* 217, 219 (Aug. 30, 1946).

The function of firebridges in large boilers, drainage of drying cylinders, and breakdowns in electric motors are topics briefly considered. TTD:11-46.

POWER ECONOMY. Heat savings mean fuel savings. Henry Miedendorp. *Rayon Textile Monthly 27,* 549-50 (Oct. 1946).

Attention is called to many cases in which heat is wasted for lack of insulation on heated equipment. A continuous blow-off system is recommended for conservation of heat. TTD:11-46.

STEAM BOILERS. External wasting of boiler plates and tubes. Edw. Ingham. *Dyer 96,* 221, 223-4 (Aug. 30, 1946).

Possible causes of erosion and corrosion in boilers and suggested preventive measures are given. TTD:11-46.

STEAM CONDENSATION. Initial condensation in steam engine cylinders. Edw. Ingham. *Dyer 96,* 129-31 (Aug. 2, 1946).

Working hazards and total steam loss from condensation are examined for causes, and remedies suggested. TTD:11-46.

Mill materials — XIII 4

MATERIAL HANDLING. Lifting and transport of materials in American mills. F. A. Westbrook. *Textile Mfr. 72,* 357-8 (July, 1946).

Overhead handling equipment which saves floor space and aids safety are described and illustrated: monorail, motorized crane and chain conveyor. TTD:11-46.

MECHANICAL HANDLING OF MATERIALS in textile industry. Anon. *Textile Mfr. 72,* 356 (July, 1946).

A hydraulic mobile stacker and a lifting truck (J. Collis & Sons, Ltd.), are described and illustrated. TTD:11-46.

Mill lighting — XIII 5

COLOR DYNAMICS IN PLANTS. B. E. Gupton. *Textile Forum 3,* No. 1, 14, 25 (Feb. 1946).

The utilization of appropriate colors as an aid to increasing the satisfaction of workers with their surroundings (and thereby their efficiency) is briefly discussed. TTD:11-46.

GOOD LIGHTING IN MILLS. Anon. *Textile Weekly 38,* 212, 214, 216 (Aug. 2, 1946).

Fluorescent lighting is considered highly desirable for mills and is strongly recommended. TTD:11-46.

GOOD MILL LIGHTING. Jas. T. Meador. *Knitter 10,* No. 3, 37, 56-7 (Mar. 1946).

Adequate lighting is discussed and 3 schematic diagrams of a suggested wiring system are given, indicating location of fuse boxes and transformers. Long feeder circuits of lighting voltage should be avoided in order to reduce voltage drop. TTD:11-46.

WIRING IN TEXTILE MILLS. Jas. T. Meador. *Textile Bull. 70,* No. 9, 24, 26 (July 1, 1946).

Some brief notes on the use of proper wiring ducts. TTD:11-46.

Atmospheric control — XIII 6

ATMOSPHERIC CONTROL. Air conditioning, a study of means and effectiveness. E. Indvall, Aktiebolaget, L. & P. Videngren. *Textil och Konfektion 3,* 418-22 (Nov. 1946).

Air conditioning is important not only for humidification of a textile mill atmosphere to the optimum condition for processing fibers and yarns, but also for the comfort and working efficiency of factory personnel. An installation is described and illustrated in which the air is changed 5 times hourly by means of 3 ventilators having an air flow capacity of about 880,000 cu. ft. each. In another installation ceiling perforations of properly selected size permit the air to pass through the ceiling at a slow rate to assist in the ventilation. An automatic hygrostat for temperature and humidity control is also described. It operates on the principle of changes in length of animal hairs as humidity rises or falls. TTD:11-46.

CARD ROOM DUST CONTROL. Anon. *Textile Weekly 38,* 160, 162, 164, 166 (July 26, 1946).

The Hall and Kay principle of dust removal and collection by means of HanK equipment, an essential feature of which is the adjustable hopper, is described and illustrated. TTD:11-46.

DUST CONTROL. Removal of dust by electrostatic precipitation. E. Howlett. *Textile Mfr. 72,* 359-61 (July, 1946).

Mechanical and electrical methods of dust removal are compared, particularly with regard to the relatively greater cost of the latter method. For very high efficiencies (98%) the electrical precipitation method is indicated, but even for low efficiencies suspended particles frequently are too small (as in fumes) for effective removal by mechanical means.

TTD:11-46.

Process control — XIII 7

CONTROL OF FINISHED FABRICS in modern research laboratory. Maurice Cohen, United Merchants & Manufacturers. *Textile Forum 3,* No. 2, 12-13 (May, 1946).

The value of laboratory control in fabric finishing processes is outlined. TTD:11-46.

INSTRUMENTATION. On the relation of instrumentation to quality control. Leslie E. Simon, Ord. Dept., U. S. Army. *Instruments 19,* 654-6 (Nov. 1946).

There are 3 primary sources of errors in measurement: errors of the operator, errors in the instrument, and variations in the product. Each must be studied and controlled. The difference between precision and accuracy must be understood, and known for the instruments available. On the basis of the above studies, the most economical instrumentation can then be established.

LCL TTD:11-46.

SLASHING CONTROL. Complete slasher room control. Anon. *Rayon Textile Monthly 27,* 551-2 (Oct. 1946).

A description of various electrical controlling and recording instruments (Barber-Colman) used in the slasher room. These devices control moisture in the yarns, the cooking cycle, rate of temperature rise, cooking time, etc., of the sizing bath.

HAM TTD:11-46.

BASIC SCIENCES — XIV

Mathematics — XIV 1

MATHEMATICAL THEORY OF ELASTICITY. I. S. Sokolnikoff & R. D. Specht. McGraw-Hill Book Co., Inc., New York City; 1946; 384 pp.; price $4.50.

Reviewed in *Rev. Sci. Instruments 17,* 442-4 (Oct. 1946). TTD:11-46.

Chemistry — XIV 2

CELLULOSE BEHAVIOR with filtered light from carbon arc source. K. S. Campbell & P. J. Fynn, Southern Regional Research Laboratory. *Textile Research J. 16,* 450-8 (Sept. 1946).

Evidence tends to substantiate the theory that certain wave length regions in the spectrum may interact so as to reduce the net degrading effect on cotton cellulose of the total incident radiant energy. Clear glass has a slightly greater protective effect than blue when used to screen a sample of cotton fabric from carbon arc radiation. The protective effect of red and yellow glasses on cellulose exposed to light is due to the selective rather than total transmission properties of these filters.

LWR TTD:11-46.

CELLULOSE DECOMPOSITION. Photochemical decomposition of cellulose acetate-butyrate. R. L. Tichenor, Kodak Research Laboratories. *J. Polymer Sci. 1,* 217-24 (May, 1946).

The chief result of irradiation of cellulose acetate-butyrate with ultraviolet light is cleavage of the cellulose chains so that the average molecular weight is lowered. The exposed material dissolves more slowly in common solvents than the unexposed.

LWR TTD:11-46.

CELLULOSE GELS. Submicroscopic structure of cellulose gels. A. Frey-Wyssling & K. Mühlethaler, Eidgenossische Technische Hochschule & Trüb, Täuber & Co. *J. Polymer Sci. 1,* 172-4 (May, 1946).

The crystallization of submicroscopic cellular strands from multimolecular cellulose films is illustrated by electron micrographs.

LWR TTD:11-46.

CELLULOSE MOLECULES. Sedimentation and diffusion of cellulose molecules. J. J. Hermans,

Algemeene Kunstzidje Unie & affiliated companies. *J. Polymer Sci. 1,* 233-6 (Aug. 1946).

The sedimentation and diffusion constants of cellulose at infinite dilution conform with a formula derived on the assumption of randomly coiled structures. The principle is introduced that the sedimentation velocity of closely packed particles moving through a liquid exerts an influence on their motion, according to known hydrodynamic laws.

LWR TTD:11-46.

CELLULOSE STUDIES VII—Nature of hydrocellulose. Lejaren A. Hiller, Jr. & Eugene Pacsu, Textile Foundation & Princeton Univ. *Textile Research J. 16,* 490-7 (Oct. 1946).

Subjecting hydrocelluloses to reducing-group determinations (by the $KMnO_4$ method) showed that their reducing power was less than that of the cotton from which they were prepared. By a new theory of the acid treatment of cellulose weak acids are said not to hydrolyze 1, 4-glycosidic bonds but rather to hydrolyze semi-acetal bonds, which connect the primary chain molecules to give rise to secondary chain molecules. The resulting leaching-out of the smaller molecules (such as glucose, cellobiose, etc.) leaves a residue of larger primary chain molecules. The loss of physical structure is due to the breaking of a number of H bonds and to loss of small molecules.

LWR TTD:11-46.

COLLOIDS. Statistical behavior of the single chain molecule and its relation to statistical behavior of assemblies consisting of many chain molecules. Werner Kuhn & Franz Grün, Univ. of Basel. *J. Polymer Sci. 1,* 183-99 (May, 1946).

Macromolecules can be treated statistically either by attributing a separate entropy and free energy to each molecule, or (in the case of solutions) by applying statistical considerations, e. g. of entropy and free energy, to the elementary particle. Depending upon the parameter considered, the same chain molecule must sometimes be treated as a complicated system and at other times as an elementary particle. The entropy of an aggregate of chain molecules is not simply equal to the sum of the individual entropies. The same particle can give rise to a macroscopic phenomenon in 2 ways about equally: first, as a complicated system, and second, as an element in an aggregate of like particles. This applies in particular to elastic retractive force and to strain birefringence in rubber and related substances.

LWR TTD:11-46.

DENSITY OF CELLULOSE FIBERS. I—Introduction and experiments on penetration of liquids into dry cellulose. P. H. Hermans & D. Vermaas; II—Density and refractivity of model filaments; III—Density and refractivity of natural fibers and rayon. P. H. & J. J. Hermans & D. Vermaas, Algemeene Kunstzijde Unie & affiliated companies.

J. Polymer Sci. 1, 149-55, 156-61, 162-71 (May, 1946).

Density is considered a typically macroscopic concept, not applying to small particles or bodies with small pores. However, the pore system occurring in native fibers is coarse enough not to interfere with density determinations in indifferent organic liquids. Water and glycerol are shown to penetrate dry cellulose very slowly; indifferent organic liquids do not penetrate at all. The heterogeneous course of absorption is evidenced by a sharp microscopically visible boundary line between the wet and dry portions of the fiber. From accurate determinations made on model filaments of bone-dry viscose, the molecular refraction calculated was shown to correspond within 0.3% with the refraction calculated from atomic refractions. It is concluded that the liquid used for the density determinations (mixtures of CCl_4 and nitrobenzene) does not penetrate into the fiber substance. A micromethod is described for density determinations of artificial cellulose fibers by the floating method in CCl_4 blends in a dry and air-free atmosphere, permitting an accuracy of 0.1%.

LWR TTD:11-46.

DRYING. Collapse of capillaries in the drying of porous gels. W. H. Banks & W. W. Barkas, Printing & Allied Trades Research Assn., Forest Products Research Laboratory. *Nature 158,* 341-2 (Sept. 7, 1946).

When a hygroscopic porous gel dries under decreasing vapor pressures the capillary voids tend to contract and even to collapse as they lose water. It has been thought that cell wall collapse occurs only if air cannot enter as the water escapes, but it now appears that access of air does not prevent the collapse and consequent shrinkage. Drying of fibers is influenced by the principles. TTD:11-46.

FERMENTING CELLULOSE. Fermentation of wood dust by cellulose bacteria. Artturi I. Virtamen, Biochemical Inst., Helsinki. *Nature 158,* 795 (Nov. 30, 1946).

Up to 70% fermentation of the cellulose in birch, aspen and pine by using finely powdered wood. The results agree with the theory that part of the cellulose in wood is free and part is bound with lignin.

TTD:11-46.

FIBROUS MATERIALS. Expression of liquids from fibrous materials. C. Fred Gurnham & Henry J. Masson, N. Y. Univ. *Ind. Eng. Chemistry 38,* 1309-15 (Dec. 1946).

The separation of mixtures of liquids and fibrous solids by expression has been investigated theoretically and experimentally. Equations derived describe the volume of a system under a fixed pressure when the pressing has been continued to equilibrium. Evolution of the constants of such equations for specific systems gives a formula for computing the volume of a batch of material under pressure; if the solids volume is

known, the quantity of residual liquid can be determined by difference. Experiments verifying this relation are described and certain limitations pointed out. The effects of batch size and liquid characteristics are discussed briefly. Among other materials, cotton, woolen yarn, and wool felt were investigated in the dry state, wet with water, and wet with mineral oil.
WPU, Jr. TTD:11-46.

FLOW BEHAVIOR. Rheological properties of high-viscosity solutions of long molecules. F. H. Garner & Alfred H. Nissan, Univ. of Birmingham. *Nature 158,* 634-5 (Nov. 2, 1946).

Flow of viscous solutions of long-chain molecules (rubber or soaps) through nozzles and pipes shows differences in shear at different depths in the liquid. The result is a surface effect resembling pseudoplastic flow. TTD:11-46.

POLYMER-LIQUID INTERACTION. Determination of polymer-liquid interaction by swelling measurements. Paul Doty & Helen S. Zable, Polytechnic Inst. of Brooklyn. *J. Polymer Sci. 1,* 90-101 (Mar. 1946).

It is indicated that the interaction can be characterized by the quantity mu, commonly used in thermodynamics of polymer solutions. The Flory-Rehner theory is checked and corroborated by this work.
LWR TTD:11-46.

POLYMETHYL METHACRYLATE. Relation between molecular weight and intrinsic viscosity for polymethyl methacrylate. J. H. Baxendale, S. Bywater & M. G. Evans, Leeds Univ. *J. Polymer Sci. 1,* 237-44 (Aug. 1946).

The chain lengths of polymethyl methacrylates prepared with ferrous ion- H_2O_2 as the initiating system are consistent with the scheme advanced for the mechanism of the polymerization. The relation between intrinsic viscosity in benzene and molecular weight for fractionated polymethyl methacrylate has been determined.
LWR TTD:11-46.

VINYL POLYMERS. Intramolecular reactions in vinyl polymers as means of investigation of propagation step. E. Merz, T. Alfrey & G. Goldfinger, Polytechnic Inst. of Brooklyn. *J. Polymer Sci. 1,* 75-82 (Mar. 1946).

The Flory-Wall expressions for the fraction of substituents remaining on a vinyl copolymer, when substituents are removed at random from adjacent 1, 3 positions, are extended to the case of nonrandom copolymerization. A copolymer composition equation is derived for the case in which the type of monomer preceding the active free chain end affects the propagation reaction. The distribution of lengths of sequences and copolymers is discussed.
LWR TTD:11-46.

VINYL POLYMERS. Mechanism of vinyl polymerizations. IX—Some factors affecting copolymerization. Chas. C. Price, Univ. of Illinois. *J. Polymer Sci. 1,* 83-9 (Mar. 1946).

The polarity of the monomer double bonds is one of the governing factors in determining the ease of copolymerization: if one of the monomers has an electron-rich double bond and the other has an electron-poor double bond, copolymerization is favored.
LWR TTD:11-46.

EMULSION TECHNOLOGY. A symposium. Ed. 2. Chemical Publishing Co., Inc. Brooklyn, N. Y.; 1946; 360 pp.; price $6.50.

Reviewed in *Rayon Textile Monthly 27,* 569 (Oct. 1946). TTD:11-46.

TEXTILE RESEARCH XV

CONTINUED RAYON RESEARCH urged at seminar. Anon. *Am. Wool Cotton Reptr. 60,* No. 28, 13-14, 64 (July 11, 1946).

A summary of discussions. TTD:11-46.

INDUSTRY-WIDE RESEARCH is geared to aid production. Anon. *Rayon Textile Monthly 27,* 455-6 (Sept. 1946).

Some activities of the Textile Research Institute are briefly outlined. TTD:11-46.

NATIONAL TEXTILE SEMINAR. Anon. *Cotton* (Atlanta) *110,* No. 8, 75-80, 82, 86, 90, 92, 94, 96, 98, 100; *Textile Colorist 68,* No. 8, 16-17, 45, 49 (Aug. 1946); *Am. Wool Cotton Reptr. 60,* No. 29, 11-12, 52-4 (July 18, 1946); *Fibre & Fabric 99,* No. 3207, 6, 8 (July 20, 1946); *Traveler* No. 117, 3-4 (Oct. 1946); *Textile Bull. 70,* No. 10, 30, 33, 62-3 (July 15, 1946).

The meeting at Hershey, Pa., under the sponsorship of the Philadelphia Textile Institute, is reported. Addresses and open forum discussions covered a wide range of topics in design, manufacturing, finishing, fabrication, and selling. TTD:11-46.

NATION'S TEXTILE SCHOOLS broaden curricula scope. Anon. *Am. Wool Cotton Reptr. 60,* No. 35, 9-10 (Aug. 29, 1946).

Course improvements, looking toward more comprehensive programs, are briefly surveyed.
TTD:11-46.

RESEARCH key to future textile growth. Ward Delaney, Inst. of Textile Technology. *Fibre & Fabric 99,* No. 3211, 10 (Aug. 17, 1946). Reprinted from (*N. Y. J. of Commerce*).

The value of research to the textile industry is stressed; specific examples where research has paid are cited briefly. TTD:11-46.

RESEARCH ADMINISTRATION IN TEXTILE INDUSTRY. Giles E. Hopkins. *Rayon Textile Monthly 27,* 537-9 (Oct. 1946).

Inauguration of a research program in a textile plant is discussed with particular reference to its adminis-

tration. A minimum annual budget for such a program is set at $100,000. Competition from the advancing research programs of other industries increases the demand on the textile industry for vigorous research.
TTD:11-46.

TEXTILE DEVELOPMENTS. Wartime developments in textile industry. Anon. *Textile Recorder 64,* No. 760, 42-4, No. 761, 56, 59-60; *Textile Mfr. 72,* 342-6, 393-7 (July, Aug. 1946).

Papers presented at the Textile Institute conference are briefly summarized. TTD:11-46.

TEXTILE MANUFACTURING IN SOUTH. Julian F. Smith, Inst. of Textile Technology. *Southern Power & Industry 64,* No. 10, 74-7, 96 (Oct. 1946).

Recent textile advances are surveyed.
TTD:11-46.

TEXTILE RESEARCH. Review of Am. Viscose's textile research dept. Graeme G. Whytlaw, Am. Viscose Corp. *Rayon Textile Monthly 27,* 457-60 (Sept. 1946).

A brief general review of activities.
TTD:11-46.

TEXTILES IN MUSEUMS. Art and the textile industry. Anon. *Textile Colorist 68,* No. 8, 20-4, 58 (Aug. 1946).

The textile display in the Metropolitan Museum of Art is briefly described. TTD:11-46.

MEMORANDUM ON PATENT LAW REFORM. Joint Chemical Committee on Patents. Assn. of Brit. Chem. Mfrs., London, 1946; 118 pp.; price 3s.

Reviewed in *Nature 158,* 725-6 (Nov. 23, 1946).
TTD:11-46.

REPORT OF THE DIRECTOR OF RESEARCH FOR 1945. Publication 179, Wool Industries Research Assn., Leeds, 1946; 28 pp.

Reviewed in *Nature 158,* 386-7 (Sept. 14, 1946).
TTD:11-46.